The latest on Linux HP, Novell and Oracle have pumped up their Linux offerings with data center products. **PAGE 16.**

Nortel's storage play Vendor has big plans for extending storage-area networks over MANs and WANs. **PAGE 21.**

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June 30, 2003 ■ Volume 20, Number 26

Review: IP telephony management tools:

Alcatel, Avaya, Siemens and Vertical Networks bring diverse wares to the table. See how these products stack up against each other.

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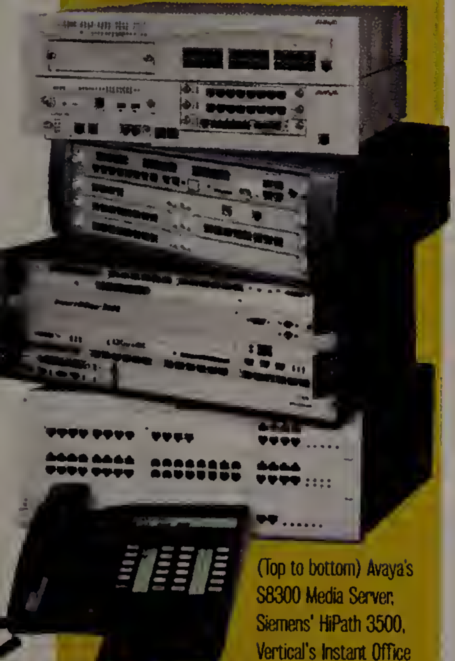


(Top to bottom) Avaya's S8300 Media Server, Siemens' HiPath 3500, Vertical's Instant Office 3500, and Alcatel's OmniPCX IP PBX system with e-Reflexes 4035 IP telephone.

Applications or hardware: Pick your mgmt. tool

■ BY DENISE DUBIE

Semiconductor company Smith & Associates is bent on getting a better handle on its network resources, recognizing that it just can't afford to keep adding servers every time LAN traffic spikes.

In exploring its options, the Houston company has determined that a different network management strategy was in order. But instead of taking the conventional path of swapping its old management software for new, the company is looking to replace its software with . . . hardware.

"We need a product that offers some automation and doesn't require my staff to be in front of it 24-7," says Bob Ackerley, president and co-founder of the semiconductor maker. The company is leaning toward start-up Vieo, which released its multifunction management appliance into beta tests last week. The box would replace software from BMC Software and Peregrine Systems, which, while working as advertised, no longer fit Smith & Associates' needs in managing

See Management, page 56

Microsoft taking on identity mgmt.

■ BY JOHN FONTANA

Playing a high-stakes game of catch-up with rivals, Microsoft this week is scheduled to unveil a plan to develop a comprehensive platform for managing user identities.

The initial effort, however, appears to be more of an "everything but the kitchen sink" approach and an expansion of third-party alliances into non-Windows environments, and less about Microsoft digging in to create a cross-platform infrastructure.

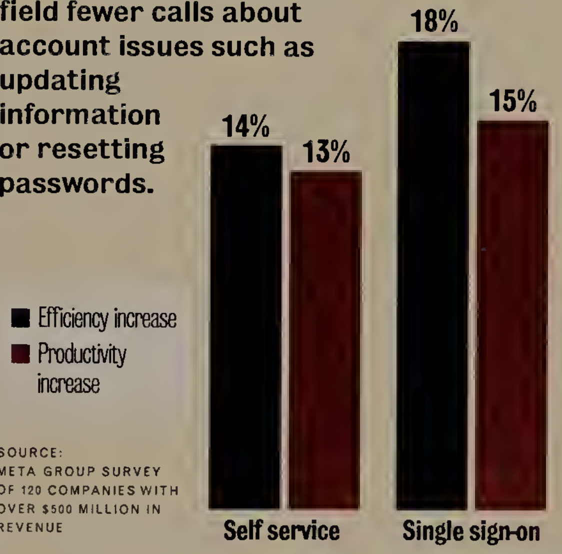
Observers say this first strike at an identity management platform is a tactical move by Microsoft to address current identity management needs that support portals and Web-based single sign-on. They say the company's real goal is to leap over its rivals into a future in which Web services support identity management and access control across corporate boundaries.

"What you will see from them in this first round is more marketing veneer," says Mike Neuenschwander,

See Microsoft, page 58

Better, faster, leaner

Self-service and single sign-on technology can improve the productivity of the help desk, which will field fewer calls about account issues such as updating information or resetting passwords.



SOURCE: META GROUP SURVEY OF 120 COMPANIES WITH OVER $500 MILLION IN REVENUE

Calif. breach-disclosure law raises questions, concerns

■ BY ELLEN MESSMER

A groundbreaking California law that takes effect this week compels any business or state agency that suffers a computer security breach to immediately notify residents if their personal information is compromised . . . or risk a lawsuit.

Moreover, the California Database Security Breach Act is having an effect far beyond that state because it applies to any business — no matter where it's located — if it has customers in California. The first law to mandate such customer notifications, it also requires disclosure whether a break-in is confirmed or merely suspected.

U.S. Sen. Diane Feinstein (D-Calif.) has indicated interest in fostering a national law along the same lines.

While the legislation has generated much opposition from the business community, some companies say they're ready for the law because they already follow its basic premise.

"There have been instances where user passwords were inadvertently accessible," says eBay spokesman Kevin Pursglove.

See California, page 20

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NetworkWorld

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CLAY SISK

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See how Alcatel, Avaya, Siemens and Vertical Networks gear stacks up. Page 41.

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Interactive

Breaking networking news from across the pond

Our International News page now features the latest news, analysis and features from TechWorld, our new sister site in the U.K. **DocFinder: 6530**

Wireless Wizards

Adding voice to a WLAN

In our newest Fusion-exclusive column, each week our Wizards will answer your tough enterprise wireless questions. This week, Tom in Dallas wants to know how to build a wireless LAN that supports converged voice/data services. **DocFinder: 6531**

Forum: Microsoft as anti-spam savior

Bill Gates says he's getting tough. Will Microsoft solve the spam mess for us? **DocFinder: 6532**

Seminars and events

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Columnists

Compendium

New knowledge-management resource

Fusion Editor Adam Gaffin directs you to the Association of Knowledgework, which recently opened its site so you can peruse its white papers and articles. **DocFinder: 6533**

Telework Beat

Great changes come to SMB Networks

Net.Worker Editor Toni Kistner details changes to our SMB Web site to better suit your needs. **DocFinder: 6534**

Small Business Tech

SMBs attract enterprise players

Columnist James Gaskin says you should watch your wallet when the big guys come calling. **DocFinder: 6535**

Home Base

Combating e-mail bounce-back

Columnist Jeff Zbar says online tools help manage unwieldy databases, keep contacts current. **DocFinder: 6536**

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NewsBits

TheGoodTheBadTheUgly

Gates, spam fighter. Love him or hate him, it can't hurt to have Bill Gates taking aim at spammers. He issued a letter to customers on Microsoft's Web site last week (www.nwfusion.com, DocFinder: 6625) outlining the company's efforts to contain the "spreading plague" that is spam. The billionaire's best line: "Like almost everyone, I receive a lot of spam every day, much of it offering to help me get out of debt or get rich quick. It's ridiculous." ➤

E-mail free-for-all. Only one-third of 1,100 companies surveyed have written retention and deletion policies for e-mail, and just over a fourth of them train employees in these policies, according to a new report by the American Management Association, the ePolicy Institute and a management software vendor. What's worse is that the numbers haven't improved since the last survey, conducted two years ago.

Yet another botched election. It doesn't quite rank up there with the hijinks surrounding the 2000 U.S. presidential election, but the University of California, Riverside, had an election mess of its own in April that resulted in the student government vote being redone a month later. According to an Associated Press report, a 21-year-old student was arrested earlier this month on multiple charges, including allegedly altering computer data without permission; he is said to have broken into the university network to cast 800 votes for a fictitious candidate called American Ninja.

Microsoft, Sun split Java ruling

■ An appeals court has reversed a lower-court ruling that Microsoft must distribute a version of Java endorsed by Sun. But the appeals court also affirmed a ruling saying Microsoft violated Sun's copyright by distributing its own version of the Java programming language. Both companies claimed victory after the Fourth U.S. Circuit Court of Appeals announced its decision, another step in Sun's private antitrust lawsuit against Microsoft. The district court erred by requiring Microsoft to carry the Sun-compatible version of Java with its operating systems and browser products because there was no proof that Sun would suffer "immediate irreparable harm" without the order, Appeals Court Judge Paul Niemeyer wrote. A Microsoft spokesman called the ruling a "positive step," saying the must-carry Java order was the key issue. As for the copyright infringement order, Microsoft already complied in February, replacing the service pack Windows XP SP1 with a new service pack that excludes Microsoft's Java virtual machine. Sun officials said they are exploring their options on the must-carry Java decision.

IDC: WLAN chips to be notebook staple

■ Wireless LAN chips will plummet in price and show up in almost all notebook PCs by 2007, according to a recent study by IDC. "We think it's going to be integrated into most notebooks at that point, at a minimum extra charge, if any," says Ken Furer, an analyst at IDC. The research firm estimates that most notebooks will have WLAN capability built in by 2005, and by 2007, 98% will come with it. Furer predicts 91% of those systems will be equipped with 802.11a/b/g chipsets, which let users log on to LANs that use 54M bit/sec 802.11a and 802.11g technologies and those that use 11M bit/sec 802.11b. This year, about 42% of notebooks will ship with WLAN capability included.

ICANN to foster more user input

■ The Internet Corporation for Assigned Names and Numbers has approved a framework for the formation of local, regional and global groups, in what the organization says is a step toward more involvement from the user community in decisions affecting how the Internet is run. ICANN is the nonprofit organization responsible for coordinating the Internet's domain names and addresses and other policy issues related to the 'Net's technical functions. However, the group has come under fire almost since its inception for being overly bureaucratic and ineffective. "These groups will ensure that the voice of different sectors of the Internet community will be more distinctly heard and that their representation will be effectively taken into account when ICANN takes action on issues of interest to the user community," says Paul Twomey, ICANN president and CEO. The issues include privacy in the Whois database, and the introduction of new domain names and internationalized domain names, ICANN says.

Oracle hints at buying spree

■ Oracle's aggressive bid for PeopleSoft is just the beginning of what might signal a new strategy for the company in which it quickly gains ground in the slipping enterprise applications market by scooping up competitors, an Oracle executive hinted last week. "If consolidation is going to happen, we'd rather drive it than watch it," said Chuck Phillips, Oracle's executive vice president in the office of the CEO, during a press briefing at the company's AppsWorld conference in London. Phillips, who recently was recruited to Oracle after years on Wall Street as an analyst covering enterprise software, confirmed that his addition to the company helped mark the strategy change. His comments came one day after Oracle Chairman and CEO Larry Ellison left the door open for a further increase in its already-sweetened bid to acquire PeopleSoft. "Never say never," Ellison said during a keynote address at AppsWorld when asked about the possibility of an increase to Oracle's $6.3 billion unsolicited offer for PeopleSoft.

Recording industry to target individuals

■ The Recording Industry Association of America soon will begin gathering evidence for use in what could be "thousands of lawsuits" against individual music-file swappers, the organization said last week. The RIAA cited its efforts to educate the public about the illegality of file swapping and the easy availability of legal downloading services as precursors to its new effort to target individual file swappers who, it contends, are engaged in piracy.

COMPENDIUM

Ditching privacy policies

Web site privacy policies are supposed to be good things, but consultant Adam Kalsey says some companies actually are deleting them: "One of my clients was advised by their lawyer not to post a privacy policy. The lawyer's reasoning was that if you don't make it public you can't be sued for not abiding by it." *Read more at www.nwfusion.com, DocFinder: 6537.*

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Prices drop for high-end net gear

BY PHIL HOCHMUTH

Recent Layer 3 and Gigabit switch announcements from Cisco and Nortel, as well as new gear expected this week from Extreme Networks, are pushing down prices for advanced technology.

But how many customers need it now?

Few are clamoring for Gigabit to the desktop and routing in the wiring closet, but pricing for such gear is getting to the point where companies might start building their future networks today.

Extreme this week is expected to introduce its Summit 200, a stackable box with the lowest cost yet for the company's Layer 3 switching technology. Meanwhile, Cisco cut its per-port price for copper Gigabit by half with new blades for its Catalyst 4500, announced last week. Also introduced last week were Nortel's Passport 8300 and BayStack 5000 series, which offer Gigabit and routing for wiring closets.

"At the moment, there is more of a vendor push here than a pool of [user] interest," regarding Layer 3 and Gigabit Ethernet in the wiring closet, says Chris Kozup, an analyst with Meta Group. "It's not that users are dying to route [packets] toward the [LAN] edge or migrate to Gigabit," he says, but "Layer 3 ASICs and Gigabit chipsets are down to such price points that they can be brought into the mix at relatively low prices."

Kozup adds that enterprise switch makers also are packing their wiring-closet boxes with features to differentiate their gear from commodity Layer 2 products. "This mitigates the risk of having an Extreme or Cisco customer keep those vendors' products in the core, but open up the wiring closet to a Dell or Allied Telesyn or HP," he says.

Extreme's Summit 200 is a full Layer 3 10/100M bit/sec switch that comes in 24- and 48-port versions. Either Layer 2 or routed ports can be turned on for end-user connections. Layer 3 routing, with protocols, such as Routing Information Protocol, Open Shortest Path First and Border Gateway Protocol, also can be activated on Gigabit uplink ports to add resiliency and faster inter-subnet traffic.

The boxes also support advanced Ethernet ring topology configurations, with Extreme's Ethernet Automatic Protection Switching protocol for creating high-speed redundant clusters of switches. The switches cost about $77 per port — one-third the cost of the average Layer 3 port last year, according to Gartner.

Cisco is going after customers considering Gigabit upgrades with the new 48-port 10/100/100M blade for the Catalyst 4500. At a price of about $104 per port, the blade is half the cost of Cisco's previous triple-speed module for the Catalyst 4500.

Cisco last week also introduced:

- The Supervisor II-Plus module for the Catalyst 4500 with a 64G bit/sec backplane (twice as fast as the previous Supervisor II).
- The Access Gateway Module, which can turn a Catalyst 4500 into a voice-over-IP-capable LAN/WAN router, with support for fail-over to localized IP call control.
- New 10/100/1000M bit/sec and 10/100 workgroup switches with the Catalyst 2970 and 2950.

One expert says Layer 3 in the wiring closet can be a performance dream or management nightmare, depending on how it is implemented.

Routing in the wiring closet can help reduce backbone traffic, especially if there is a lot of traffic flowing between different subnets attached to different switches in the same closet, says James Trulove, a network consultant and author books *LAN Cabling* and *Broadband Networking*.

With Layer 3 in the closet, "you don't have to send everything to the big router in the sky to be routed, which frees up bandwidth in the core," he adds. But he warns that putting a router in every wiring closet in a big company could have untidy side effects.

"Instead of having just one router in the core, you'll have all these boxes out there with their own routing tables," Trulove says. "It can be a real monster to fix" if a routing table becomes corrupted or copied wrong, he adds.

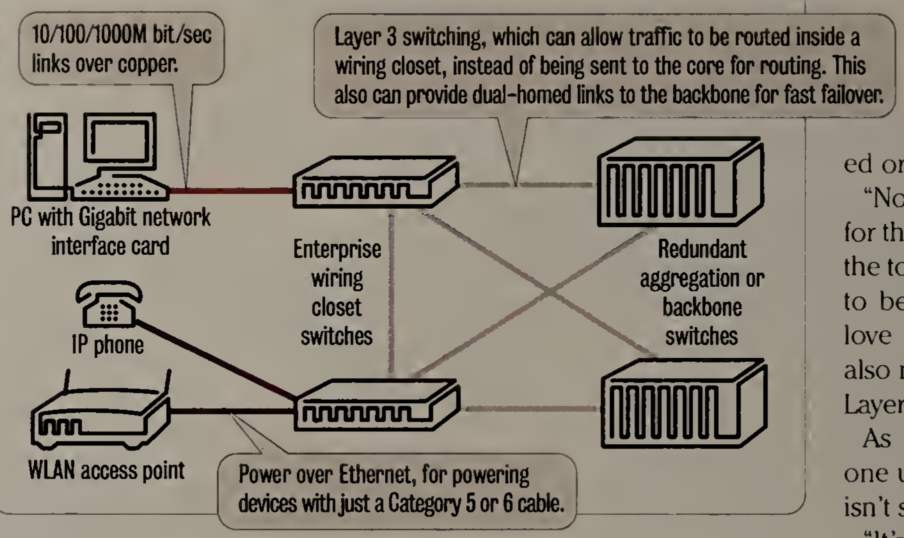
"Not only do you have to staff for that, but you also have to have the tools and network knowledge to be able to troubleshoot," Trulove says. Such additional costs also must be considered, even as Layer 3 prices drop, he adds.

As for Gigabit to the desktop, one user sees the need for it, but isn't seeing the dollars.

"It's all about the budget-approval process," says Bruce Meyer, senior network engineer at ProMedica Healthcare in Toledo, Ohio. Meyer's organization is a leading radiology facility and is rolling out a "film-less" X-ray system in which doctors and technicians will use high-resolution images can be used to diagnose broken bones. While radiologists connect to image servers via Nortel Passport switches with 10/100M links now, "it would be cool to have [Gigabit to the desktop] in our environment," he says. But budget constraints have limited Gigabit deployments only to servers. ■

Packed wireless closets

Lower costs are allowing vendors to make wiring closet switches with backbone-level functionality.


10/100/1000M bit/sec links over copper.
Layer 3 switching, which can allow traffic to be routed inside a wiring closet, instead of being sent to the core for routing. This also can provide dual-homed links to the backbone for fast failover.
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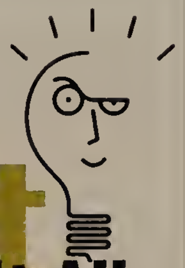

Be a Net Know-It-All

THIS WEEK'S QUESTION:

Name the consortium announced last week by Fujitsu, HP, IBM and others that has as its goal making it easier for gadgets to work with each other on home networks.

Answer this and nine additional questions online and you could win $500! Visit **Network World Fusion** and enter **2349** in the Search box.

www.nwfusion.com

Research network to have global focus

BY DENISE PAPPALARDO

A group of universities and vendors are teaming on a new research network they say could pave the way to the Internet of the future.

PlanetLab, with about 60 academic institution members and the backing of technology heavyweights HP and Intel, is building a worldwide research network over the Internet. Participating schools include Columbia, Massachusetts Institute of Technology, Princeton and Stanford.

The goal is to provide a space to test disruptive technologies that will enable the Internet to develop further. PlanetLab is a network of computers, linked by the Internet, on which researchers can test distributed, networked applications and services such as search engines, or new routing and naming protocols.

"The research community is full of ideas about new services they want to deploy.... The problem is, there is a very high barrier to entry," says Larry Peterson, professor of computer science at Princeton and director of PlanetLab.

The barrier is the cost to build such a network, which is why the group went with an overlay approach. PlanetLab's network consists of 160 servers, at 65 sites in 16 countries.

While similar to Internet2 in that both projects foster the advancement of cutting-edge technology, PlanetLab's goal is to let researchers test their projects over a "real" network with outages and downtime, Peterson says. Internet2's Abilene network spans only the U.S. and connects most sites using high-bandwidth dedicated lines. Abilene is a separate backbone that doesn't depend on the Internet.

PlanetLab's global network uses a combination of low-speed and high-bandwidth connections to the Internet for real-world application and service testing, Peterson says. The network is restricted to research organizations that "contribute nodes" to the network and maintain those servers, he says.

Many fields of research could be opened by PlanetLab, says David Culler, a professor in computer science at the University of California at Berkeley and academic director of Intel Research at Berkeley.

"People are looking at distributed search engines," he says. "Distributed storage is particularly interesting as you start to integrate that with various kinds of sensors streaming information from the physical world."

Enhancing multi-player games is another potential application, but Culler says "we believe the most important ones are the ones we haven't seen yet because people haven't had the tools available."

The group expects its network will grow aggressively to 300 nodes by year-end and to 1,000 nodes within two years. The servers PlanetLab uses are based on Intel's Pentium III processor and run a customized version of Red Hat's Linux operating system. "It's convenient to get things running quickly, and a lot of the research community uses Linux," Peterson says.

Intel Research has donated 100 servers to the project. HP is donating 30. Both vendors have active experimental PlanetLab projects underway. (See "Researchers spawn innovative net," page 27.)

Peter Sayer from IDG News Service contributed to this story.

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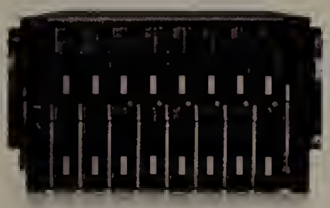

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Vendors line up behind Itanium

■ BY JENNIFER MEARS

When Intel rolls out the third generation of its Itanium processor as expected today, it will be greeted by growing vendor momentum behind 64-bit computing, but enterprise customers are still on the fence when it comes to bringing in the more powerful machines to support key applications and networks.

The launch of the latest version of Itanium 2, code-named Madison, comes with widespread vendor support, a marked change from earlier Itanium releases, when HP and Unisys were the primary companies to roll out products using the 64-bit Intel chip. This time Dell will announce an Itanium 2-based product, and IBM, which waited nearly a year before rolling out a server based on Intel's second-generation Itanium chip (code-named McKinley), will have two new servers running the Madison processor.

The chip will come in three versions: a 1.5-GHz processor with 6M bytes of cache, a 1.4-GHz processor with 4M bytes of cache, and a 1.3-GHz chip with 3M bytes of cache. The earlier Itanium processors ran to speeds of 1GHz with 3M bytes of cache.

Faster-processing 64-bit systems historically have been used by the high-performance computing community, which needs the speeds and the expanded memory to handle heavy-duty number crunching. But businesses also are beginning to look at 64-bit capabilities to run business-intelligence applications, for example, or to handle ever-expanding ERP deployments.

"This is the first time we'll see an architecture that's capable enough to start to get equal interest not just on technical computing, where McKinley got it, but also as a general-purpose platform in the 64-bit space," says Brad Day, a vice president at Forrester Research.

Already, software vendors have been working with beta versions of the Madison chip to port applications over to the new platform. "It's a good indication that the winds are starting to move in [Itanium's] direction," Day says.

Application support ultimately will be the key in determining how Itanium 2-based systems fare, analysts say.

"Madison is really the first systems architecture that we believe can start to be competitive against Unix RISC alternatives," Day says. "What needs to evolve is the breadth of horizontal applications on this platform, as well as applications that are vertically based."

Major software vendors such as Microsoft, Oracle and SAP support Itanium 2, but expanding the software portfolio for Itanium 2 still has a long way to go, he says. About 100 software vendors support Itanium 2, whereas about 15,000 applications are optimized for Unix RISC.

Business customers also have been slow to warm up to Itanium, which now accounts for only about 3% of all servers shipped, Day says. Dell initially will aim its Itanium 2-based server at high-performance computing customers, opting to wait for businesses to more widely embrace the platform.

Don Whitcomb, IT lead of the Internet Combined Administrative Management System (ICAMS) project at the U.S. Department of Agriculture says he sees no pressing need to move to a 64-bit system. The government agency is using a Unisys 32-bit Xeon server to run ICAMS, which is a PeopleSoft human resources deployment.

"My main thing is the software to support [Itanium]," Whitcomb says. "We need to wait for the vendors to offer the software."

At Raymond James Financial in St. Petersburg, Fla., CIO Tim Eitel is ready to slide the latest Itanium 2 chips into his 16-processor Superdome server probably later this summer. Eitel is using the Superdome to consolidate disparate databases into one data warehouse using Microsoft's 64-bit SQL Server Enterprise Edition running on Microsoft Datacenter 2003.

The data warehouse is consolidating customer information that in the past was spread across multiple systems, enabling Raymond James to run business intelligence applications to get more out of its customer data.

"Speed becomes very critical. [The Madison processors] will just make it a faster machine, giving us a real advantage," he says. "One of the things that reduces the success of warehouses is the lack of responsiveness.■

Mad about Madison

Intel's latest chip, code-named Madison, might finally push Itanium into the enterprise: Even Dell is rolling out an Itanium-based system. A look at vendor offerings:

HP: The new Integrity server line offers Itanium-based options from one- and two-way entry-level servers to high-end 64 processor Superdome boxes that will be available later this summer. HP's fault-tolerant NonStop servers also will run on Itanium by 2004. The company also announced a new Itanium 2-based workstation priced at about $5,000.

IBM: The four-way eServer x450 is designed for high-performance database and ERP applications, while the two processor eServer x382 is optimized for Linux clustering by technical and scientific users. The boxes, both priced starting at about $26,000, are scheduled to be available later this summer.

Unisys: The ES7000/400 series will start with Unisys' first four-processor 64-bit system and eventually scale to 32 processors for high-end computing. The four-processor system will start at about $55,000 and is scheduled for availability next month.

Dell: After skipping Intel's second-generation Itanium chip, (code-named McKinley), Dell is back in the 64-bit fray with the two-processor, Itanium-based PowerEdge 3250, designed for high-performance computing clusters. It will be available June 30, starting at $6,000. An eight-node clustered configuration for high-performance computing is priced at $88,600.

Express targets small businesses

■ BY DENISE DUBIE

Last summer when Dr. Peter Vonu went looking for a way to streamline systems and ensure privacy for patients visiting his offices, he says he couldn't have imagined the answer lying with IBM.

"When I thought of IBM, I thought of Fortune 500 companies," he says. "I never thought of a little guy like me."

With the help of systems integrator Ascendant Technology, Vonu used software from IBM's Express portfolio to automate the practice's check-in process to electronically enter patient information into a database that let the 57 staff members access shared information.

After spending a few months and about $10,000 with the two companies, Vonu says he and four other doctors can see more patients daily at the Plastic Surgery Center of Hampton Roads in Newport News, Va. Vonu uses IBM WebSphere Application Server Express, WebSphere Portal Express and Lotus SameTime software.

The system automates a process that was once manual and ensures privacy for the 600 clients that visit the office each week. The portal and workflow system eliminates the need for patients to sign in on a clipboard, and instead uses an electronic pad, which patients sign once. The electronic pad display is connected to the portal software, which shows all staff members connected to the network, in this example, the patient's signature.

Doctors, nurses and other staffers then can communicate via the Lotus SameTime messaging system about how to more quickly process the patient. The time once spent processing patient information and communicating patient data via phone or e-mail, the doctor says, gives the staff more time to deal with patients.

The benefits are two-fold, according to Vonu.

"We don't have to wait for an e-mail system or phone call, it's all in real time," he says. "And patients don't have to worry about their name being on a piece of paper and a clipboard alongside other patients' names."

The doctors took advantage of IBM's recent push to address what the company sees as a largely untapped market — small to midsize businesses. IBM first launched the Express line last fall and updated the portfolio in February. Last week the company added more products designed for companies with between 100 and 1,000 employees.

The additions included two software offerings in the WebSphere portfolio, a vertical product offering and more financing options, which the company says will let customers pay for their software over the course of three to five years.

IBM WebSphere Commerce Express is software designed to help small and midsize companies start building an online store with an e-commerce site. Wizards and point-and-click menus help users establish a Web presence. WebSphere MQ — Express is software that serves as middleware, sitting between applications and letting them interface with one another. The product helps customers connect many applications to enable the sharing of data across an IT infrastructure. ■

Small Blue

IBM says it made $4.3 billion, or about

20%

of its corporate revenue, in the first quarter of this year by selling products and services to small and midsize companies.

Corrections

■ In the story "WLAN managers see cavalry coming" (June 23, page 1), it should have stated that Airespace has been shipping products since April.

■ In the story "Automated service saves AT&T users plenty" (June 9, page 1) Metavante's VendorLink software should have been described as connecting the carrier customer's network with AT&T's e-bonding system.

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Linux marches on despite legal wrangling

■ **BY JENNIFER MEARS**

HP, Novell and Oracle last week made Linux-related announcements aimed at making it easier for corporate users to support the open source operating system in their data centers.

Analysts have said that lack of experienced Linux support staff is a hurdle for Linux adoption. In response, Novell and HP announced broader services and technical support for Linux installations, and Oracle unveiled its Linux Platform Migration Utility that the company says will ease migration of Oracle applications to the Linux platform.

The free migration tool, scheduled to be available in July, retains the exact patch level and many customizations of applications so that users don't need have to synchronize databases or do any other retooling, Oracle says.

Novell's announcement followed through on the company's promise in April to further support Linux, by announcing Novell Nterprise Linux Services. The product integrates Novell's file, print, messaging, directory and management services for use on Red Hat Enterprise Linux and SuSE Linux Enterprise Server.

The product, which Novell says will be available later this year, is an alternative path for Linux users who don't want to wait 18 months for NetWare 7, which is scheduled to support both the Linux and NetWare kernels.

Meanwhile, HP announced plans to build preconfigured Linux clusters on ProLiant and Itanium 2-based servers. It also expanded its relationship with SuSE Linux to resell and support SuSE's Linux product on its Intel-based servers.

Customers also seem unfazed by The SCO Group's ongoing Linux battle with IBM and are continuing to embrace Linux in larger numbers, analysts say. According to Gartner, about 425,000 servers shipped with Linux last year, accounting for about 9% of the 4.6 million server market. The research firm expects the number of Linux licenses to jump to 1.4 million by 2005.

"For the most part, every major hardware vendor and quite a few software vendors have stepped forward and said Linux is part of their portfolio," says Dan Kusnetzky, vice president of system software at IDC. "By the time they start saying, 'This is part of our portfolio,' they've made a great deal of investment, and they're not going to back off just because an organization, regardless of who they are, has started litigation against some other organization."

But some analysts note that users often are turning to Linux with little fanfare, unwilling to put themselves on SCO's radar screen as it warns users that they, too, could be held liable for intellectual property violations.

Otis Lamar, systems administrator at Jefferson County in Golden, Colo., has been a Novell customer for nearly a decade and is glad to see the company throwing its support behind Linux. Jefferson County has about 60 Linux and 30 NetWare servers.

Jefferson County will look at moving all of its servers to Linux, Lamar says. "We will be evaluating [the Nterprise Linux Services] product," he says.

The initial version of Novell Nterprise Linux Services will consist of integrated Novell network services, including Novell eDirectory and DirXML, Novell iFolder, Novell iPrint, NetMail, ZENworks for Servers and exteNd Director.

Beta testing for Nterprise Linux Services will begin in July, the company says. ■

Taking flight

Vendor support is helping Linux take off in corporate data centers. Here's a look at some recent Linux-related announcements:

June 26: HP announces it will resell and support SuSE Linux Enterprise Server 8 on its ProLiant and Itanium-based servers.

June 25: Oracle rolls out the Linux Platform Migration Utility, a tool designed to help companies migrate Oracle E-Business applications to Linux.

June 25: HP discusses plans to roll out preconfigured Linux clusters.

June 24: Novell unveils Nterprise Linux Services, which integrates network services such as file sharing, printing, messaging and directories for Linux.

June 18: IBM begins shipping high-end Linux systems.

Start-up wireless gear circumvents obstructions

OS Gemini gear aims at reliability of point-to-point connections.

■ **BY TIM GREENE**

A start-up from the U.K. is coming out this month with point-to-point devices that it says will let users reliably connect remote sites wirelessly even if trees, buildings and other large objects block the way.

Orthogon Systems will sell its OS Gemini gear in pairs, one at each site, and they will broadcast traffic using the unlicensed 5.8-GHz radio-frequency range via roof-mounted antennas. The devices are intended for corporations with multiple sites in cities with tall buildings, or campuses where hills and other natural features block the line of sight between buildings. The devices also could act as backup to wired connections if public network services fail.

OS Gemini gear supports 99.99% availability of a useful signal over a distance of up to 2 miles if the path between the devices is obstructed by an object 30 feet taller than the antenna, says Philip Bolt, Orthogon's director and CEO. There is a dead zone immediately behind the obstruction where signal is blocked entirely.

The start-up says that when faced with only small obstructions Gemini can transmit up to 6 miles with a user data rate of 15M bit/sec. A software upgrade later this year will push that rate to 23M bit/sec, the company says. Unobstructed, it can transmit more than 30 miles.

Some competitive vendors, such as Redline Communications, Proxim and Aperto Networks, also make wireless gear using the 5.8-GHz unlicensed range, and claim even longer unobstructed reach, says Lindsay Schroth, an analyst with The Yankee Group, says. But Orthogon seems focused on highly reliable connections over obstructed paths, she says.

MobilCom Wireless, a consultancy in Edmonton, Canada, next month plans to install the gear at a remote site in northern Alberta that will be blocked by trees and power lines. In the meantime, MobilCom has been testing the Orthogon gear over a 6-mile distance in Edmonton where hindrances include a river, industrial buildings and a power plant. "We have a nice worst-case scenario we're working with," says Brian Napier, director of market development for MobilCom. So far, the tests have not found a point at which the Orthogon devices fail to deliver, he says.

While radio signals can bend around objects, it can take an enormous boost in power — 10,000 times or more — to make the signal intelligible on the other side. Even then, the signal would suffer fade, a precipitous drop in signal strength caused by the signal being scattered and reflected as it comes around objects. The radio waves get out of sync and cancel each other out, effectively resulting in no signal.

Orthogon combats this with two transmitters and two receivers in each Gemini. Each transmitter sends two versions of the same data using technology called multi-beam space-time coding. The two receivers pick up these signals and sort them out to reproduce the data stream.

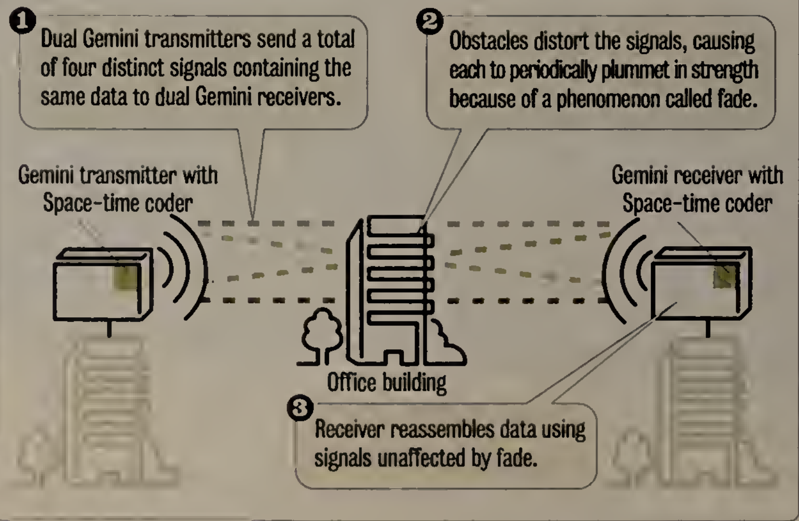
Each of the four signal paths will suffer fade, but the statistical likelihood is that the four will not suffer fade at the same time.

The gear also uses intelligent antennas that seek the channel that offers the best signal and can adjust if circumstances change.

Customers could use point-to-point wired connections such as T-1s from local phone companies instead, but then would have recurring monthly costs of hundreds of dollars per month, says Andy Fuertes, a senior analyst with Visant Strategies. "You want to reduce operating expenses as much as you can," he says. The Orthogon gear costs about $12,000 per link, Bolt says. ■

Dodging obstacles

Orthogon Systems uses technology called multi-beam space-time coding in its Gemini point-to-point wireless gear to let radio signals travel around obstacles to reach receivers.


❶ Dual Gemini transmitters send a total of four distinct signals containing the same data to dual Gemini receivers.
❷ Obstacles distort the signals, causing each to periodically plummet in strength because of a phenomenon called fade.
Gemini transmitter with Space-time coder
Gemini receiver with Space-time coder
Office building
❸ Receiver reassembles data using signals unaffected by fade.

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Start-up joins WLAN fray with device

■ BY JOHN COX

Last week marked the debut of yet another wireless LAN start-up, this one with a compact product that it says will help companies do away with more wires than competing gear.

Strix Systems' Access/One is a stackable set of modules, each roughly the size of an average paperback book. One of the modules has a standard WLAN radio that connects to notebooks and other wireless clients, just like any access point. But the only wire needed by each stack is a power cable to the base unit.

The stacks rely on an 802.11a radio module and Strix's mesh software to coordinate their interactions, and route wireless packets through the mesh. One or two of the stacks use an Ethernet cable to connect to the wired network.

A network industry irony is that the term WLAN refers only to the connection between a notebook or PDA and a nearby access point. The access point itself typically needs one or two wires: a power plug and an Ethernet cable to a wiring closet switch. (If the device supports power-over-Ethernet, then only the network cable is needed.)

Installing a cable drop for each access point is time-consuming and costly, ranging from $200 to $1,500, according to Bob Jordan, vice president of marketing at Strix, who bases the figures on information from systems integrators. Jordan is one of the few top Strix executives who did not migrate from telecom software vendor Vertel.

The Strix mesh software is intended to create a cluster of WLAN access points that are aware of each other. Plugging a stack of modules into an outlet powers up each module. The Network Connect Module (the 802.11a radio) automatically identifies itself to the corresponding module in surrounding stacks. If a stack fails, or is unavailable, other stacks can route around it. The software is designed so that each stack continually seeks the best path for its wireless traffic.

See Strix, page 56

California

continued from page 1

"Whenever a breach happens, and it's happened a number of times, we have always notified our customers about any of these problems."

He said eBay, which has its headquarters in San Jose, encrypts credit card numbers and customer information. Under the California law, a computer breach involving theft of encrypted sensitive customer data would not require notification to California customers.

Nevertheless, the law has IT managers nationwide bolstering network security and wringing their hands over how to respond should outside hackers or corrupt insiders gain access to customer databases that might include the personal information of Californians. And in situations in which service providers are processing sensitive customer data over the Web for their customers — banks, for example — questions about liability are cropping up far outside California.

"As an application service provider, we assume we would be responsible for notifying the banks if a breach occurred, and the banks would notify their California customers," says Eric Beasley, senior network administrator at Baker Hill in Indianapolis. Beasley's company provides online loan-origination applications for about 150 banks, including California's Union Bank. It also acts as the front end for the Fair, Isaac & Co. credit-modeling application LiquidCredit.

Protections for California consumers

The California Database Security Breach Act that goes into effect July 1:

- Covers any state agency, person or company that does business in California.
- Requires disclosure to California residents if a breach of personal information has or is believed to have occurred.
- Defines personal information as name with Social Security number, driver's license number, state ID card, account number, credit or debit card number, in combination with required security codes.
- Offers redress in court if companies don't comply.

"We're just beginning to understand how the California law is applicable to us," Beasley says, noting that there might be a new legal environment unfolding where financial institutions will want to write into contracts that third parties must notify them of any security breach, or possible security breach.

The question of third-party responsibility is suggested but not clearly articulated in the new law, says Dina Davalle, an attorney at Luce, Forward, Hamilton & Scripps. The law does cover those who license or maintain the customer data, she notes. But as to what they should be compelled to do in a security breach, "it's a little vague," she says.

The law says disclosure of a security breach to California residents must come immediately, and lawyers say that means nothing more specific than within a reasonable period of time.

The law is intended to prevent identity theft, but a number of trade groups opposed the legislation as being wrong-headed. Some say that by forcing businesses to disclose suspected breaches, it will frighten customers even when no loss of personal information occurred.

"And it will be a field day for hackers because much of the thrill for them is the notoriety," says Tami Salmon, a Washington, D.C., attorney with Investment Company Institute, which represents more than 8,000 investment firms and has stated opposition to the California bill.

"It has too low a threshold for when a company has to go to the notification process," says Harris Miller, president of trade group Information Technology Association of America, which has more than 500 high-tech members. "You'll have to notify customers when nothing may have actually happened. The law will have a lot of negative consequences for companies and consumers."

Many California-based companies have buttressed security in anticipation of the law going into effect this week.

"We've reviewed our security structures and we're working to create awareness about this in the company," says Tammy Lowe, CIO at Novato, Calif., house and garden retailer Smith & Hawken, which has print catalogs, an e-commerce Web site and brick-and-mortar stores throughout the country.

Like Baker Hill, Smith & Hawken opted for the intrusion-prevention approach in preparing for the advent of the security-breach law. The retailer added host-based software called Primary Response from Sana Security across its servers. Primary Response takes about a week to learn patterns of normal behavior and can then detect and block attempts to subvert a server.

Baker Hill has taken steps such as installing a gateway appliance from Teros that can block and report on any suspicious attempts to access Web-based applications. Beasley says the Teros application-layer intrusion-protection appliance alleviates the need to immediately rush to patch for newly discovered vulnerabilities in software, which are often the holes that hackers use to breach a system.

A key question the new law raises is whether companies should be prepared to disclose a breach not only to Californians but to other customers. Smith & Hawken is leaning toward notification for Californians only. Some attorneys say that sticking too closely to the letter of the law might be problematic.

"The law only requires notification of California residents, but providing notice strictly to known California residents may be a risky approach for a company to take," attorney Davalle says. "What if a company's database is outdated and a customer who is listed as a non-California resident has moved and is now a California resident?"

She also points out that notifying only Californians could create a public relations nightmare.

The law does say that the customer-notification process can be delayed if companies take their problems to law enforcement and are told that going public would hinder an investigation.

Acceptable methods of disclosure are spelled out: a letter, or e-mail if a customer has authorized that beforehand. If the cost to make a disclosure exceeds $25,000 or involves more than 500,000 customers, the law allows other possibilities, including a conspicuous Web posting or generating press coverage. ■

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Researchers power up server clusters

■ **BY JENNIFER MEARS**

Software being developed by a computer science professor at Duke University could help spur so-called utility computing technology that promises to offer users self-managing systems that grow and shrink in response to user demand.

For about a year and a half, Jeff Chase, associate professor in the Department of Computer Science at the university in Durham, N.C., has worked on software that lets users share clusters of computers by creating multiple virtual systems out of a single physical pool of servers.

Called Cluster-on-Demand, the software separates the entire software environment, including the operating system and applications, from servers. To put it simply, the servers boot via the network and hook into a database that tells them what operating system to run, what software to load, what policies to adhere to and other details.

As a result, the computing resources can be used for whatever applications demand them, Chase says.

"Cluster-on-Demand treats the operating system as a replaceable component that can be configured based on the needs of the user," Chase says. "We treat hardware as generic. . . . We want to allow companies to be able to view their clusters as a multipurpose, modular dynamic resource, rather than as a brittle computing resource bound to specific software environments."

Chase calls Cluster-on-Demand, which is being used to share resources in a 350-computer cluster at Duke, a resource manager for mixed-use clusters. Cluster-on-Demand is the framework that lets those linked clusters be provisioned on the fly according to user demands, he says. The approach also could be applied within corporate data centers, but the question is whether business needs demand it yet.

"The use of this technology could be effective in large, application-rich or computing-intensive enterprise data centers. It might just be too much for the small to midsize environment," says James Barry, CIO at OneUnited Bank in Boston.

Clusters have long been popular in research labs doing heavy-duty number crunching, but they're becoming more common in corporate data centers, where customers are linking multiple low-cost Intel-based servers to get the computing power previously available only with expensive high-end machines.

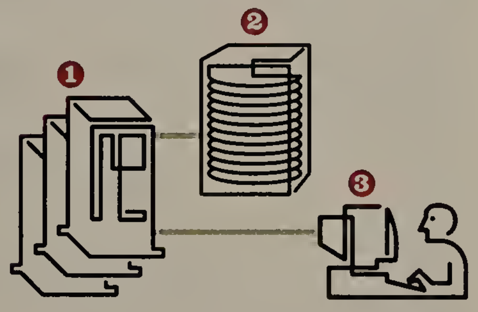
As a result, industry experts say the work being done at Duke could have significant impact on how users manage corporate data centers of the future.

See Cluster, page 24

■ **HOW IT WORKS**

Learning to share

Researchers at Duke University are working on software called Cluster-on-Demand that enables virtual clusters created on the fly. The idea is to let businesses run applications on whatever computer resources are available. A look at how it works:



① A cluster of standard Intel servers boots up via the network. The servers are not running native operating systems and can be provisioned and configured as needed.

② The servers contact a database server, which tells them what operating system, software and policies they should be running.

③ The cluster is modified and resized as user needs demand.

Short Takes

■ **IBM** customers looking for some extra processing power now can lease supercomputer-sized Linux and Unix clusters over the Internet, thanks to a new computing facility opened last week in Poughkeepsie, N.Y. The new **Deep Computing on demand** facility initially will house 600 clustered servers; 500 eServer x335 and x345 machines; and 100 p655 computers. But the building is large enough that it could be expanded to house thousands of servers, should that be necessary, IBM says. The idea is to give customers with intensive but short-term computing needs the option to rent a large clustered computer rather than build it themselves. IBM says the center initially will serve customers in the petroleum and life sciences industries.

■ **HP** last week unveiled services designed to assist clients with management and implementation of storage systems. The services address needs such as data replication, data cleansing and disaster recovery, and can include consulting, hosting, design, installation, testing, documentation and training. The new services include **HP Data Replication Solution Service,** in which, for a price ranging between $10,000 and $60,000, HP implements a data replication system and integrates it with existing storage products. In addition, **HP Disaster Tolerant Management Service** is a custom-priced offering aimed at strengthening a company's disaster-recovery plans, covering all the links involved in maintaining or restoring IT functions in the event of a catastrophe.

Nortel lays out storage plan

■ **BY DENI CONNOR**

With the heightened interest in business continuity and disaster recovery, Nortel has a ready-made market for extending storage-area networks over metropolitan-area networks and WANs.

The company, which specializes in optical network gear, uses its fiber-optic multiplexers to extend the distances between Fibre Channel SANs so data can be replicated between enterprise data centers and remote locations. Nortel has other plans as well — namely providing enterprise-size customers with less-expensive, low-bandwidth, coarse wavelength division multiplexing (CWDM) SONET/Synchronous Data Hierarchy (SDH) technology.

"We are focused on SAN extension," says Jack Hunt, director of marketing for storage and photonics at Nortel. "Once data leaves the data center and traverses across the campus, metro or wide area, that's where we focus. Whether its Fibre Channel, iSCSI, InfiniBand or another technology, we'll carry it."

Analysts say the company's plans are solid.

"Nortel has always shown a good understanding of the storage space and the enterprise requirements that are driving their products," says John McKnight, an analyst with Enterprise Storage Group. "They were one of the first networking vendors out of the gate with dense wavelength division multiplexing [DWDM] products that support Enterprise Systems Connection, Fibre Channel, Fibre Connection and storage traffic."

According to IDC, Nortel led the metropolitan DWDM market with a 41% market share last year. Companies such as Alcatel, Cisco, CNT and Lucent, which also carry storage traffic, share the remainder.

The Texas Advanced Computer Center (TACC) at the University of Texas at Austin, uses Nortel's OPTera Metro 5200 Multiservice Platform to link its midtown campus to a research facility 10 miles away over a private fiber network. It will run Fibre Channel and Gigabit Ethernet to let users access SAN data in either location.

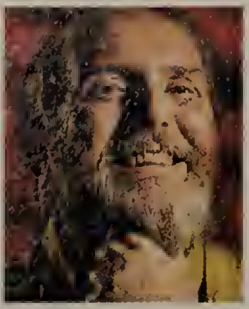
"We can provide multiple [wavelengths] of much higher bandwidth than we could before the installation of the Nortel equipment," says Chris Hempel, associate director of TACC. "The Nortel gear provided the support for the multiple types of interfaces — OC-48, multiple Gigabit Ethernets and 10 Gig Ethernets and Fibre Channel — we had to support." Initially, TACC will not use iSCSI or InfiniBand technologies.

Nortel traditionally has carried storage data over optical networks using DWDM technology. It has provided that gear to cor-

See Nortel, page 24

WIRED WINDOWS

Dave Kearns



Tilting at windmills

Larry Ellison has been described as the rudest, most arrogant man in software — and that's by his friends — but he seems to be the most honest character in the Oracle/PeopleSoft/J.D. Edwards saga!

J.D. Edwards CEO Bob Dutkowsky is suing Oracle, saying it "illegally interfered in its proposed merger with PeopleSoft." Except there's nothing illegal about Oracle's move. But if the sale of J.D. Edwards to PeopleSoft doesn't go through, Dutkowsky loses out on a $2.5 million personal payout. Maybe that's the interference he's miffed at.

PeopleSoft CEO Craig Conway is suing Oracle, claiming Ellison's company is out "to injure PeopleSoft and to cripple its ability to compete." Cripple? Larry wants to put you out of business! Conway also is leading customers in cheers about how great the product is — as if the stockholders care about anything except what will deliver them the biggest profit.

Then there's the whole antitrust thing.

Conway says that regulators would turn down an Oracle takeover even though that question never arose when he aggressively pursued a merger of applications with Oracle late last year. But he's found a willing, and powerful, stooge to run with this faulty assertion. Oddly, the worst character in all this doesn't even work for a technology company.

Connecticut Attorney General Richard Blumenthal now has sued Oracle on antitrust grounds but had to so narrowly define the arena ("large enterprise software systems") that J.D. Edwards isn't included. His definition would be laughed out of any tribunal staffed by technologists, but lawyers and judges aren't technologists and sometimes believe real nonsense. Blumenthal also is on record as saying that Oracle's purchase of PeopleSoft would lead to lower-quality software. Evidently his sideline posturing in the Microsoft case has made him an expert on judging quality!

Not content with tilting at the software windmill, Blumenthal also has launched a suit to prevent three colleges (none of which are in Connecticut) from switching their affiliation from the Big East athletic conference to the Atlantic Coast Conference (see www.nwfusion.com, DocFinder: 6528). According to "Don Richard," the ACC is attempting to "destroy the Big East so that the ACC can have for itself all that we've created and invested over the years." Just like Oracle is "attempting to destroy" PeopleSoft. Evidently Blumenthal can only sing one note!

All this publicity might be just a stepping stone to higher office — at taxpayers' expense, of course. That's something for the voters of Connecticut to remember when election time rolls around again.

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@vquill.com.

Tip of the Week

Twenty years ago, Jon Postel and Paul Mockapetris thought up a way for computers to find each other on a network, and **DNS** was born. It seems like such a simple idea but it made possible all of the network communication we rely on today — e-mail, Web services, file transfer and more. Happy birthday, DNS!

Nortel

continued from page 21

porate customers and to service providers, which lease it to customers as part of managed wavelength services. Bringing DWDM capability to enterprise-size businesses — 35% of the company's business — was the first phase of its storage strategy.

DWDM, which operates at 250M byte/sec per wavelength, is overkill for many companies that do not have sufficient traffic to justify an entire wavelength.

A typical Fibre Channel link needed for synchronous replication of business-critical data will consume only 10M to 20M bytes of I/O bandwidth per second, says Stephen Adolph, vice president of product management for Akara, a start-up specializing in Fibre Channel-over-SONET gear. This represents an efficiency of 4% to 12%, he says.

The technology also has a number of limitations that make it unattractive to all but the largest organizations.

The cost of provisioning a private network for a customer can be prohibitive.

"The availability of fiber once you get out of New York City is very scarce," McKnight says. "There's a real shortage of fiber in metro areas."

And its scarceness and expense limits its saturation.

"DWDM is a very finite market," McKnight says. "The number of organizations that will invest in a private, fully dedicated DWDM infrastructure is limited to no more than 500."

IDC says that the long-haul DWDM market will grow by only 18% to $6.9 billion in 2006.

That's why Nortel embarked on the second phase of its storage strategy — extending DWDM capability to service providers, which can offer managed wavelength services to enterprise-size customers.

Nortel's storage obstacles

The company faces a number of challenges in executing its storage strategy for corporations, analysts say.

- Nortel is perceived as a network company, not a storage company.
- Nortel places a larger emphasis on the carrier infrastructure than large corporations.
- While dominant in DWDM and legacy SONET, Nortel has to break into the CWDM market.
- The company has no strategy for the "pure" storage over IP market, dominated by CNT.

A third phase of its storage strategy is to provide corporate customers with less-expensive, low-bandwidth CWDM and SONET/SDH offerings.

"The third phase was to offer lower-bandwidth solutions that would be sub-rate — below a gig's worth of bandwidth," Hunt says. "We are getting a lot of demand from our customers to extend not just within the metro, but over very long distances between cities and continents."

"CWDM, storage over SONET and storage over IP are much larger markets [than DWDM]," McKnight says. "The rest of the enterprise market without private DWDM infrastructures is really choking on the price. Moving down-market with cheaper, but effective, technologies like CWDM and storage over SONET is a logical next step for Nortel."

IDC says that CWDM, which represented only 4% of the metropolitan DWDM market in 2002, is set to grow. Analyst firm CIR says that CWDM revenues will grow from $63 million in 2002 to $240 million by 2007.

"Storage over SONET or CWDM is a real key to unlocking the mid-market and enterprise arenas that does not need the super-high capacity and performance of DWDM," McKnight says. "It's perfect for large enterprise users who don't need to do synchronous high-performance replication of large quantities of data or for users who have less stringent storage requirements in terms of performance and latency."

However, Nortel faces challenges in executing its SAN extension strategy in the lower-bandwidth areas. Among the obstacles it needs to overcome is its presence in the enterprise market. While Nortel maintains that 35% of its business is in that market, it is thought of primarily as a network company instead of as a storage company like competitor CNT.

"The fact is that CNT is known in the data center; Nortel is much better known to network buyers than storage buyers," McKnight says. "There are organizational hurdles to overcome where you are combining storage and networking."

Looking forward, Nortel says it will enable bandwidth management services for companies in which customers will be able to vary the amount of bandwidth they use and for which they are charged. ■

Cluster

continued from page 21

"The idea of data centers being light on their feet with respect to allocating and reallocating resources is very much of interest to IBM," says Bill Tetzlaff, an engineer at IBM who is familiar with Cluster-on-Demand. "It's very basic to the on-demand computing notion and the utility computing notion."

IBM and HP, along with the National Science Foundation, are sponsoring the work at Duke, which Chase notes was inspired by Oceano, an IBM Research project aimed at automating Web server farms.

Even as systems vendors such as IBM with its On-Demand initiatives, HP with its Adaptive Infrastructure and Sun with N1 talk about the promise of utility computing, industry experts say there are many hurdles to overcome before it becomes reality.

"A lot of it is nirvana and grand visions right now," says Gordon Haff, an analyst with Illuminata. "There is a lot of work that's required and end users are going to want to see a lot of maturation of this technology before they're going to turn the management of their data center over to some software program somewhere."

But Haff says network managers, especially those interested in adopting bleeding-edge technology, should keep an eye on projects such as Cluster-on-Demand.

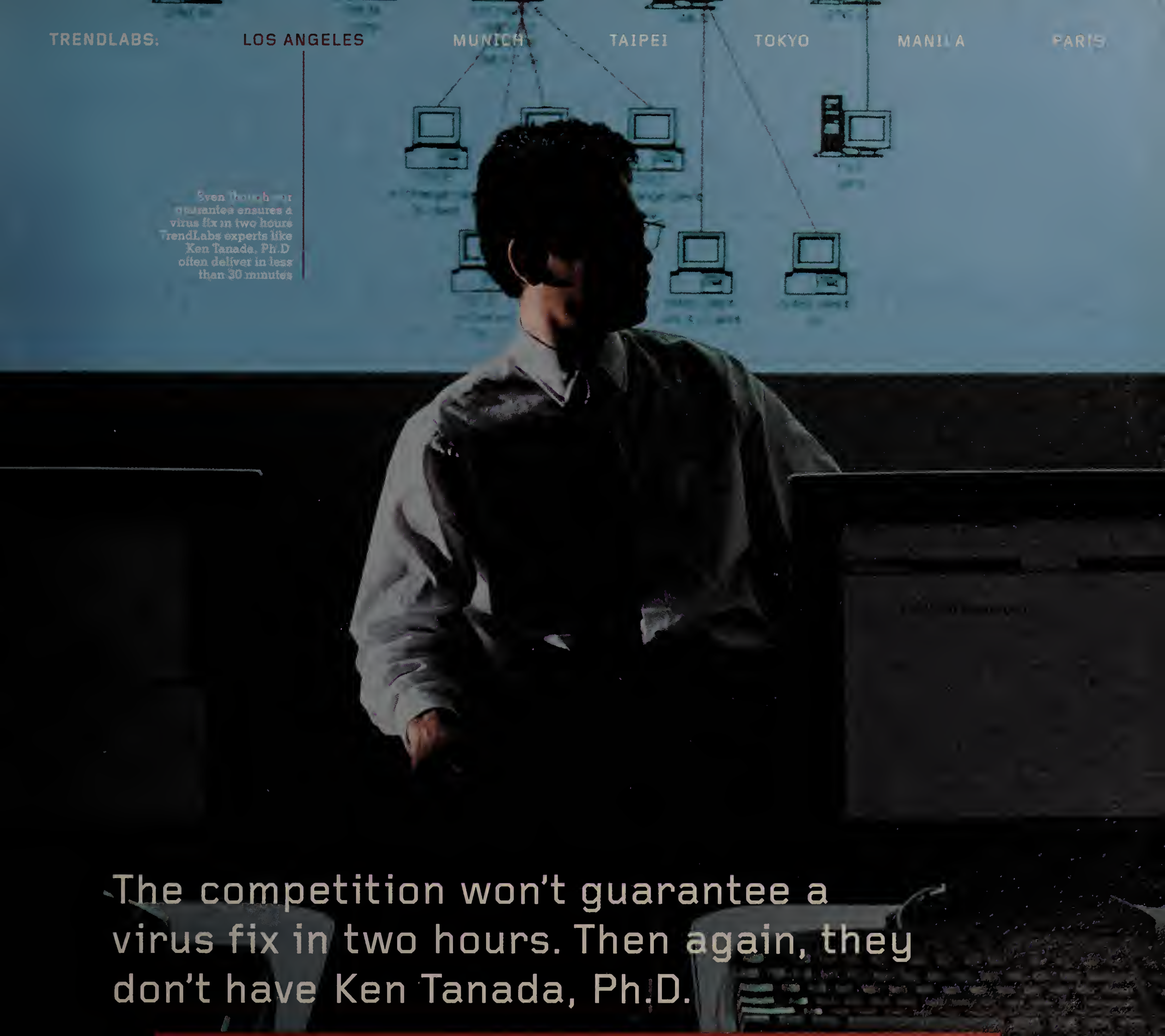
"To the degree that they want to be aware of and prepared for a big trend like data center virtualization, they should certainly be keeping their eye at the very least on projects such as this," he says.

Even IBM is paying close attention.

"Will we be picking up the code that [Chase] and his graduate students wrote and embed it in an IBM product? That's unlikely," he says. "But this is something we will be reading with great interest."

For his part, Chase says he's not looking to license the product, but is more interested in creating an open source application that can help universities, research labs and businesses share and manage cluster resources.

"Our goal is to provide the open source version and have that be a component of standard grid software," he says. ■



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Enterprise Applications

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- WEB SERVICES

Researchers spawn innovative technologies

MIT's Project Oxygen creations include advanced communication systems.

■ **BY DENISE DUBIE**

CAMBRIDGE, MASS. — Among the cluttered cubes and workspaces of one of the world's most prestigious technical institutions, students and faculty have long since tuned out the indisputable chirp of crickets that resonates every few seconds.

No, the Massachusetts Institute of Technology does not have an insect problem. The familiar noise actually comes from several small appliances (about the size of a pager) located on ceilings in various rooms, on equipment and anywhere that could be deemed a good place for a Stick-Up.

The hardware devices, called beacons, are part of the Cricket Indoor Location System, just one of about 20 technologies researchers at MIT Project Oxygen have developed since the group's inception about four years ago.

"Oxygen is about trying to develop and innovate technology that promotes human interaction, more natural interaction between people and machines," says Randall Davis, professor of electrical engineering and computer science.

Davis doubled as tour guide when the school recently opened the doors to its Laboratory for Computer Science and Artificial Intelligence Laboratory — home to Project Oxygen — to press, sponsors and the public interested in learning more about the initiative and how it aims to simplify computing.

Launched in June 2000 and sponsored by such tech industry heavyweights as HP and Nokia, which with fellow sponsors anted up $50 million for the five-year project, Oxygen is a research endeavor at heart. But while developers work to innovate what Davis refers to as "the killer app, or technology that's never been done by anyone else before," the applications developed here could ultimately emerge in products from its vendor sponsors and others.

The Cricket indoor navigation system uses radio frequency and ultrasonic technology to identify the exact location — within centimeters — of network devices, PCs and physical objects within buildings. Proponents say Cricket picks up where GPS leaves off, meaning it tracks locations inside while GPS tracks the same outside.

Here is a sampling of developments in the works:

Mobile Teleconference: This application can, according to its development team, enable an adaptive teleconference, meaning the lost connections and shoddy reception common in cell phone environments potentially could be a thing of the past. The application begins when an end user instructs a handheld computer, such as a cell phone, walkie-talkie or other PDA, to establish a communications link with another handheld computer.

The Oxygen system evaluates the available lines of communication and selects the best available link for the connections. If things change, the application will adjust and reconnect the two parties, choosing the best link from the available multimedia connections. This includes audio-only connections and text-based chat.

"You could imagine Nokia finding the Mobile Teleconference application useful in their products," Davis says.

Resilient Overlay Networks: The RON application provides a similar service between IP addresses across the Internet. The system will route around failed Internet paths by sending data indirectly through other computers on the network. By constantly measuring the paths between its participating nodes (desktops and other computers connected via a network and identified by IP addresses), RON can determine which of those paths it should use to send the data. In addition to providing the fastest route across Internet hops, RON reduces packet loss and virtually eliminates latency, researchers say.

Companies such as RouteScience, which offers route control software as a commercial product, and its customers might want to keep an eye on the development of this application.

Cricket Indoor Location System: It consists of beacons, sensors and a centralized console. Beacons, the noisiest in the lot, can be located in rooms, and they interact with sensors that can be attached to equipment such as

See MIT, page 28

Overseas outsourcing gains momentum

■ **BY ELLEN MESSMER**

NEW YORK — The decision to outsource about 20% of its application outsourcing overseas came down from Aetna's upper management, and it's hard to argue that the move hasn't paid off financially.

The insurance company pays developers in India $20 an hour vs. $60 an hour for U.S. workers, and the quality of the work has met expectations. The company is looking to outsource as much as 30% of its apps development going forward.

"They're like a remote office for us in India," says Gene Speicher, Aetna's vice president of vendor management and offshore development.

Aetna is one of a growing number of companies reaching offshore for development expertise, whether it be for mainframe, client/server or Web applications.

While only 15% of 45 CIOs and IT

See Outsourcing, page 28

Short Takes

■ **Pixion** announced last week that it would bring its Web conferencing server **PictureTalk 4.0** to the Macintosh OS X platform, giving customers the option of installing on Windows, Solaris and Macintosh. PictureTalk 4.0, offered as a hosted application or available for installation on the customer premises, is a Web conferencing-only product that competes with PlaceWare and WebEx. The software lets a presenter share slides, documents and views of nearly any application via a native PictureTalk client. Meeting attendees participate with a locally installed client or via a Java applet. Customers provide their own telephone conferencing or can use a built-in, proprietary voice-over-IP option for communicating with attendees of the conference. PictureTalk also includes text chat, whiteboard, annotation and polling functionality. The server can be integrated with Simple Mail Transfer Protocol e-mail servers and Lightweight Directory Access Protocol directories. The Mac OS X version of PictureTalk 4.0 will be available in August. For customers that want to host the product, pricing starts at $6,625 for a 10-concurrent-user license.

■ **Pedestal Software** announced an updated version of its **Intact** server software for real-time monitoring of operating systems, applications and files for Windows NT/2000, Linux, AIX and Solaris, adding an auto-configuration wizard that makes it easier to install because of an option for making use of pre-determined software configurations. Intact 3.5 costs $445 per server.

'NET INSIDER

Scott Bradner

RFP: Omniscience Protocol

In another great example of the people's representatives at work, Sen. Orrin Hatch (R-Utah) has come out four square in favor of weapons of mass computer destruction.

Hatch, who is the chair of the Senate Judiciary Committee, said he was interested in "destroying" the computers of people who illegally download copyrighted material. He said this "may be the only way you can teach somebody about copyrights."

Well I guess that crushing the cars of speeders instead of giving them tickets would teach drivers about the evils of going too fast, but it does seem a bit over the top.

The good senator is willing to get Congress to pass legislation to exempt copyright holders from liability when they "destroy" a multi-thousand dollar computer because of $10 in illegal music. I'm sure that the attitude of the copyright holders is that it's OK for a few honest people to have their computers executed as long as the machines of the dishonest are killed. But I expect that would not scale, and even the music industry would not be able to continue turning computers into doorstops if it did so in error all that often.

On the off chance that the senator actually meant what he said — something that one cannot always assume when politicians move their lips — I would like to offer some requirements for the Omniscience Protocol which will be needed to do the job right. Omniscience Protocol must:

- Be able to install itself into all types of computers over the objections of the computer user.
- Not be findable by virus detectors, but all hackers' programs that mimic the Omniscience Protocol must be findable.
- Be able to remotely differentiate between legal and illegal copies of the same material.
- Be able to remotely differentiate between illegal material and other material with the same file name.
- Be able to find illegal copies even if the filename has been changed.
- Not be able to be run by a hacker, and the Omniscience Protocol interface into a user's computer must not be able to be exploited by a hacker.
- Not be able to be used to extract information from a user's computer that is unrelated to illegal copies.
- Be able to discern the motives of the operator and not run if those motives are not pure (for example, block any operation that might stem from a vendetta).
- Be able to run through firewalls and network address translators.
- Allow for the operation of the Omniscience Protocol client to not be spoofed.
- Be able to tunnel through the due process clause of the U.S. Constitution.

The above is just a start. I'm sure you can come up with additional requirements; if you send them to me I can compile them and forward them to Hatch. If you have such a protocol you can contact Hatch directly (right after contacting the patent office).

Disclaimer: I suppose the Harvard Divinity School deals with Omniscience Protocols, but I didn't get a chance to ask it about this case.

Bradner is a consultant with Harvard University's University System. He can be reached at sob@sobco.com.

Outsourcing

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directors interviewed recently by consultancy E5 Systems said they outsourced software development offshore today, 85% expect to do so within the next five years. Cheaper labor costs are the impetus for offshore outsourcing, said E5 Systems President Gordon Brooks, who presented the findings during a roundtable discussion held earlier this month with about a dozen IT managers at art auction house Sotheby's, a survey participant.

Those surveyed cited communications and project-management problems as their main concerns in outsourcing development overseas.

Outsourcing offshore "is high risk, high reward," Brooks said.

It can save money, but there's no guarantee that a software project won't have quality problems, run late or cost more than expected, Brooks said. Such problems also exist in outsourcing software projects domestically, but they are compounded when software programmers are several time zones away in foreign countries with different laws.

The power to mess up

"And [overseas outsourcing firms] have the power to mess you up," Brooks noted. "They have so much of your data."

"Outsourcing doesn't always keep up with the changing business model, and that can come back to haunt you. There's a lot of difficulty in defining service-level agreements for outsourcing — trying not to be too tight or too flexible," he added.

Aetna, which outsources development through Infosys Technologies in Bangelore, India, cites cultural issues as being the most prominent challenges in overseas outsourcing.

There's a reluctance, for example, among many Indian IT workers to explain problems or deliver bad news as forcefully as their American counterparts, said Speicher, who noted that anywhere from 200 to 600 Infosys programmers might be working for Aetna at a given time. But Aetna's nearly five years of outsourcing experience in India has been so positive that the insurance company is willing to explore similar options in China — where costs can be as low as $6 per hour.

Joseph Snaido, vice president of systems development at investment ratings firm Moody's and a roundtable participant, said his company was still uncomfortable with going offshore, but he will evaluate it. Snaido said he strives to keep the most innovative programming for business needs done in-house but is open to outsourcing more routine software maintenance.

Freeing up resources

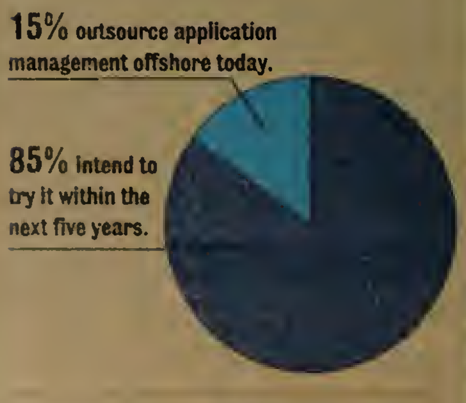
"To me, outsourcing is not so much about cost savings as about freeing up people," Snaido noted. Sometimes outsourcing offshore might not be an option for banking institutions that face prohibitions on sending customer data out of the country.

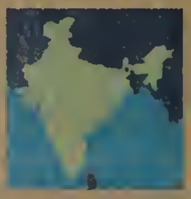
But the more routine software programming is headed offshore to the detriment of higher-paid domestic programmers, who can no longer be content to be just techies uninvolved in interacting with business managers on projects, some say.

"Pure technical skills are the most outsourceable," Speicher said. "That's the danger in just being a nerd now. We want to hire developers with people and leadership skills. But by and large, only a few really have the project-management skills." ■

Offshore management

A survey says corporate IT chiefs look to offshore outsourcing of software.





63% of companies primary outsource in India, with costs one-third or less of U.S. programming costs.

MIT

continued from page 27

wheelchairs in a hospital or chairs and desks in an office building. Likened to GPS systems, which use satellites to track locations outside, the Cricket System uses radio frequency and ultrasonic technology to more closely pinpoint the location of physical objects inside buildings.

The beacons passively listen and use ultrasonic, the ability to detect vibrations, with radio frequency to determine the exact location of a physical object within centimeters.

"Radio frequency sensors on the equipment tell the beacons, 'Yes, I'm here,'" Davis explains, "and the ultrasonic tell them, 'This is exactly where I am.'"

Scalable Location-Aware Monitoring: SLAM is a scalable network architecture for integrating sensor data or tag systems into distributed software applications. Sensors, much like the beacons used with the Cricket system, can be any commercially available appliance programmed to detect heat, humidity, temperature, movement and other physical environment elements.

Researchers say SLAM can, for example, track people in a burning building for the fire department to help firefighters more quickly evacuate people and extinguish a blaze.

The SLAM architecture also can use radio frequency identification technology to track merchandise for retailers looking to perform more accurate inventory and to offer more specific services to customers.

The current SLAM prototype uses routing protocols and a distributed streaming database system, called Medusa, to process sensor information. ■

Waiting to exhale

MIT's five-year Project Oxygen, launched in June 2000, attracted support and about

$50 million

from sponsors Acer Group, Delta Electronics, HP, Nippon Telegraph and Telephone, Nokia Research Center and Philips Research.

Special Focus

NETWORK MANAGEMENT: A standards update.

Mgmt. standards: Keeping an open mind

■ **BY DENISE DUBIE**

Customer demand for open software is driving countless vendors, such as HP, IBM and Microsoft, to work more closely with industry organizations to develop common protocols, languages and, industry standards for network and systems management.

Management standards, such as the SNMP and Common Information Model (CIM) — now in Version 3 and 2.7, respectively — came into being years ago. Yet widespread excitement over standards work has remained lackluster — until recently.

In the past two years, the poor high-tech economy and demand for new Web-based technologies caused the Distributed Management Task Force (DMTF) and its peer standards groups to stir the pot a bit and start working on multipurpose standards that could help network executives get control of today's distributed applications. Several industry organizations work with corporate end users as well as their member vendor companies and developers to create a means to an end — the end being open, interoperable and manageable information systems.

"Many technologies can make up a standard, and there are a lot of variables we need to consider," says Patrick Gannon, president and CEO of the Organization for the Advancement of Structured Information Standards (OASIS). "But ever since the dot-com bust, end users have been more particular about where they spend their money, and using standards-based products can increase the value of their current and future IT investments."

As far as Tim Hagn is concerned, a vendor selling proprietary products can keep on walking.

"The proprietary beast is dying, and we will not buy proprietary stuff if there is a viable alternative," Hagn says. The vice president of IT operations and engineering at Zurich Life in Schaumburg, Ill., makes integration capabilities, or as he says, "the ability to play well with others," a primary factor when choosing vendor wares. "We prefer vendors who are not afraid to integrate their products into our multi-vendor environment," he says.

These concerns led Hagn to use HP OpenView software to manage services and application performance across the insurance provider's network. Hagn's attitude, and that of other customers, spurred HP to get on the standards wagon. HP recently proclaimed its commitment to Web services and plans to submit its Web services management framework to an OASIS working group.

"Everybody realizes now if we get synergy in terms of standards, then everyone — users and vendors — benefits," says Al Smith, CTO of HP's Web services management operation.

Microsoft, IBM and VeriSign last year published a proprietary specification for Web services specifically, while OASIS continues to work on an open standard for Web services security. The Global XML Web Services Architecture is a framework that Microsoft and IBM are developing (along with BEA Systems, RSA Security, SAP and VeriSign), to give Web services higher-level abilities for security and reliability.

Last summer some 17 vendors submitted the code-named Bluefin specification to the Storage Network Industry Association (SNIA), which is expected to announce Version 1.0 of the newly named Storage Manage Initiative Specification (SMI-S) next month. SMI-S proposed to give storage customers a way to manage multiple storage appliances from different vendors. Before the proposed specification, enterprise storage managers would have had to manage each storage appliance with vendor-specific tools and work to integrate the disparate information manually.

Standard practices

Industry groups composed of many leading vendors work toward a common means to manage hot technologies such as security, storage and Web services. Here's a sampling of the latest specifications currently in development:

Security

Standards group: OASIS and OWASP

Specification: Web Application Security (WAS)

Announced: May 2003

Mission: To produce a classification scheme for Web security vulnerabilities, a model to provide guidance for initial threat, impact and risk ratings, and an XML schema to describe Web security conditions for use with assessment and protection tools.

Still to come: First committee meeting to be held July 3, 2003

Web services

Standards group: OASIS, DMTF, GGF and W3C

Specification: Web Services Distributed Management (WSDM)

Announced: February 2003

Mission: To define Web services management; to use Web services architecture and technology to manage distributed resources, and to develop the model of a Web service as a manageable resource.

Still to come: First draft of WSDM Version 1.0 expected January 2004

Acronym key:

DMTF = Distributed Management Task Force
GGF = Global Grid Forum
OASIS = Organization for the Advancement of Structured Information Standards
OWASP = Open Web Application Security Project
SNIA = Storage Network Industry Association
W3C = World Wide Web Consortium

"Customers want interoperability, and vendors on their own can't deliver that," says Ray Dunn, marketing manager for SNIA's Storage Management Forum. "Today, vendors are willing to work together to create a baseline for interoperability and then add their differentiation on top for a competitive advantage."

But unlike one of the oldest — and probably most ubiquitous — management standards, SNMP, the specifications under development today can't be called simple by any means.

"SNMP is the most prevalent instrumentation model for network devices, and it's a component-based management model," says Winston Bumpus, president of the DMTF. "But today we need to be able to represent not only the resources, but also the relationships among those resources. You can't manage on a component basis, you have to manage on a system basis."

Developing common methods for managing Web services, storage, security and service-oriented networks has involved multiple standards bodies working together and combining established technologies with protocols to create a new standard. For example, SMI-S uses the DMTF's CIM standard to create common data models among different storage appliances with the Web-Based Enterprise Management protocol as a means of transport and communication between the appliances and the management console.

In addition to creating multi-vendor storage initiatives, standard groups such as OASIS work to create the means with which companies can securely and reliably perform application transactions over the Web. OASIS has 60 technical committees and specifications that focus mostly on enabling e-business and newer initiatives, including developments in security, interoperability and management standards for Web services.

Security Assertion Mark-up Language is an XML framework for exchanging authentication and authorization information. Electronic Business XML is a modular suite of specifications that let corporations of any size and in any location conduct business over the Internet. And Web Services Distributed Management is a recently formed technical committee charged with developing Web services architecture and technology to manage distributed resources.

"Standards have long been fraught with politics and self-interest, but today's efforts aren't as fragmented, and they seem to be more well intentioned," says Rick Sturm, president of Enterprise Management Associates. Sturm notes that while SNMP has been around for about 10 years — and that's a few lifetimes in the technology industry — it still remains a constant in the network manager's toolbox. But he's quick to point out that other efforts haven't enjoyed as much success.

"Sometimes the professionals get caught up in the minutia, and the standard can't take off. Take [Common Management Information Protocol], for example," Sturm says. CMIP was intended to pick up where SNMP left off, but problems with its implementation delayed its widespread availability, and it is now only available in limited form from its developers.

Despite all the separate standards bodies and the various specifications they're working on, industry watchers say standards developers might have learned from mistakes and gotten past vendor self-interest to develop technology for the greater good of the industry. While vendors can keep up with competition that is offering open standards and perhaps stay on the cutting edge of new technologies, customers want obvious benefits such as more product choice, easier integration and faster implementations. ■

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Service Providers

■ THE INTERNET ■ EXTRANETS ■ INTEREXCHANGES AND LOCAL CARRIERS
■ WIRELESS ■ REGULATORY AFFAIRS ■ CARRIER INFRASTRUCTURE DEVELOPMENTS

Mirror Image joins CDN patent fray

■ **BY JENNIFER MEARS**

Content delivery network specialist Mirror Image is the latest in the industry to secure a patent covering its core technology, which addresses how content is moved across the Internet to improve speed and performance.

It's a technology that Mirror Image says other service providers and caching companies are using, which could result in new skirmishes in the content delivery industry that has been mired in legal battles.

Patents are nothing unusual in the technology industry where intellectual property is a key asset. But for the content delivery market, patents have become central to competitive tussles that have left some users wondering if their providers are safe from legal attack.

That has industry observers mulling what will result from the Mirror Image patent, which covers a transparent Web caching architecture the company designed in 1996. The technology involves automatically and transparently caching requested content on specific servers for quicker download to end users, according to Mirror Image.

The patent also addresses cache-aggregation technology, which combines multiple caches into a single entity that not only caches content but handles storage, compute and transaction processes, says Bob Hammond, Mirror Image's CTO.

"The patent covers two different areas, which are core to our technology and, as it turns out, are core to a lot of other folks' technology, as well," Hammond says.

"We're in the process of poking our heads up and looking around, trying to understand who's doing what. And that includes hardware manufacturers and ISPs and MSPs, and of course, our competitors," he says.

Hammond says users can expect announcements from Mirror Image in the next few months that will detail how it plans to exercise its patent and might include everything from cross-licensing to partnerships.

Litigation also could be a possibility, especially considering the litigious history of CDN players and their patents, analysts say.

"Why should [users] care about Mirror Image being awarded a patent? Not sure

See CDN, page 34

Patently confusing

CDN providers have long been jostling over intellectual property rights. Here's a look at a few of their patents:

Mirror Image: Recently awarded a patent that covers transparent Web caching architecture.

Speedera: Awarded two patents last year dealing with core technology that merges content delivery and global traffic management.

Akamai: List of patents includes one that involves renaming URLs to join a CDN host name to a domain name path to redirect content requests to edge servers.

Cable & Wireless (Digital Island): Most-recent patent covers technology that ensures only freshest information is server and that information is not duplicated on CDN.

Short Takes

■ **Siemens** is introducing three SpeedStream gateways that integrate wireless access into DSL modems, making it possible to network a home office and connect to the Internet using one device. If service providers adopt them, the **SpeedStream 6200, 6300 and 6400 gateways** could make it unnecessary for businesses to issue separate access points that plug into DSL routers. Each device has a DSL port and five Ethernet ports to connect to other devices via wiring. The 6200 uses a card to give it wireless capabilities, and the other two have internal wireless hardware and external antennas. The 6400 also can connect to other home devices via electrical wiring. Prices are: 6200, $289; 6300, $299; 6400, $379.

■ **Internet Photonics** last week announced the addition of SONET/Synchronous Digital Hierarchy and Fibre Channel/Fiber Connection interfaces to its **LightStack MXA** coarse wavelength division multiplexing system. The additions extend the company's product line beyond optical Ethernet to multiple managed wavelength services. The LightStack MXA now supports a mix of SONET/SDH, optical Ethernet and Fibre Channel/FICON services on rings, and point-to-point links. Using Internet Photonics' SONET/SDH WrapAround technology, new services can be deployed on the same fiber alongside existing SONET/SDH add/drop multiplexers without disruption, Internet Photonics says. The SONET/SDH blade costs $10,000; the FibreChannel/FICON card costs $8,000.

Allied Telesyn offers 'triple play'

7000-series IP DSLAMs is pitched as alternative to ATM for IOCs, greenfields.

■ **BY JIM DUFFY**

Allied Telesyn last week unveiled DSL access multiplexers that are based on IP and Ethernet, and specifically designed for "triple-play" applications: video, voice and data over one broadband connection.

The company's 7700 and 7400 DSLAMs are designed as a less expensive and more versatile alternative to ATM-based DSLAMs. They also are targeted predominantly at independent operating companies (IOC) that are more bullish than incumbent local exchange carriers (ILEC) when it comes to providing triple-play services over DSL broadband connections.

By offering triple-play services over existing copper, IOCs have a carrot with which to retain customers attracted to the data offerings of satellite and cable companies. These services are also looked upon as a way to reverse declining voice revenue.

To aid in this effort, the 7000-series DSLAMs are optimized for delivery of video over asymmetric DSL (ADSL). They can support IP multicasting of up to 512 video channels via an Internet Group Multicast Protocol (IGMP) snooping, parsing and correlation technique Allied Telesyn developed.

This technique, which identifies and delivers video streams on a per-port basis, is designed to scale IGMP and avoid flooding the network with multicast requests, Allied Telesyn says.

"This was one of the main considerations" for selecting the 7000 series, says Richard Kenshalo, director of engineering, construction and operations of Matanuska Telephone Association in Palmer, Alaska. "It's essential for what we're trying to deliver."

Matanuska evaluated IP DSLAMs from AFC, Cisco, Net2Net and Next Level Communications before deciding on Allied Telesyn. Kenshalo expects a 60% to 70% penetration rate of its digital television service into its subscriber base of 35,000.

In addition to Matanuska Telephone, the 7000-series DSLAMs are deployed by Midwest TelNet, a consortium of IOCs in Wisconsin that services 22,000 subscribers; and Vernon Telephone Cooperative of Westby, Wis.

"The IGMP switching request has got to be handled at the port-access edge due to latency concerns," Kenshalo says. "It's one of our critical design criteria. Otherwise, you kill your network. People are used to seeing something happen when they change the channel."

Until now, DSLAMs either had lacked the capabilities to support broadband video or they had been so expensive to deploy that carriers couldn't profit with them, Allied Telesyn says. By leveraging IP and Ethernet, the 7000-series DSLAMs offer a lower cost — one Gigabit Ethernet port is one-twelfth the cost of an OC-12 ATM port, the company says — and a video-friendly alternative.

"The consensus is, particularly with greenfield builds, you would want to go with Ethernet," says Michael Kennedy, principal and co-founder of Network Strategy Partners.

IOCs might be embarking upon copper-based builds, but Allied Telesyn will have a harder time tapping into the ILECs and regional Bell operating companies.

Alcatel dominates the DSLAM market in that realm with its ATM-based systems. Also, incumbent carriers are immersed in the idiosyncrasies — and investment — of ATM, so they'd be reluctant to

See Triple play, page 34

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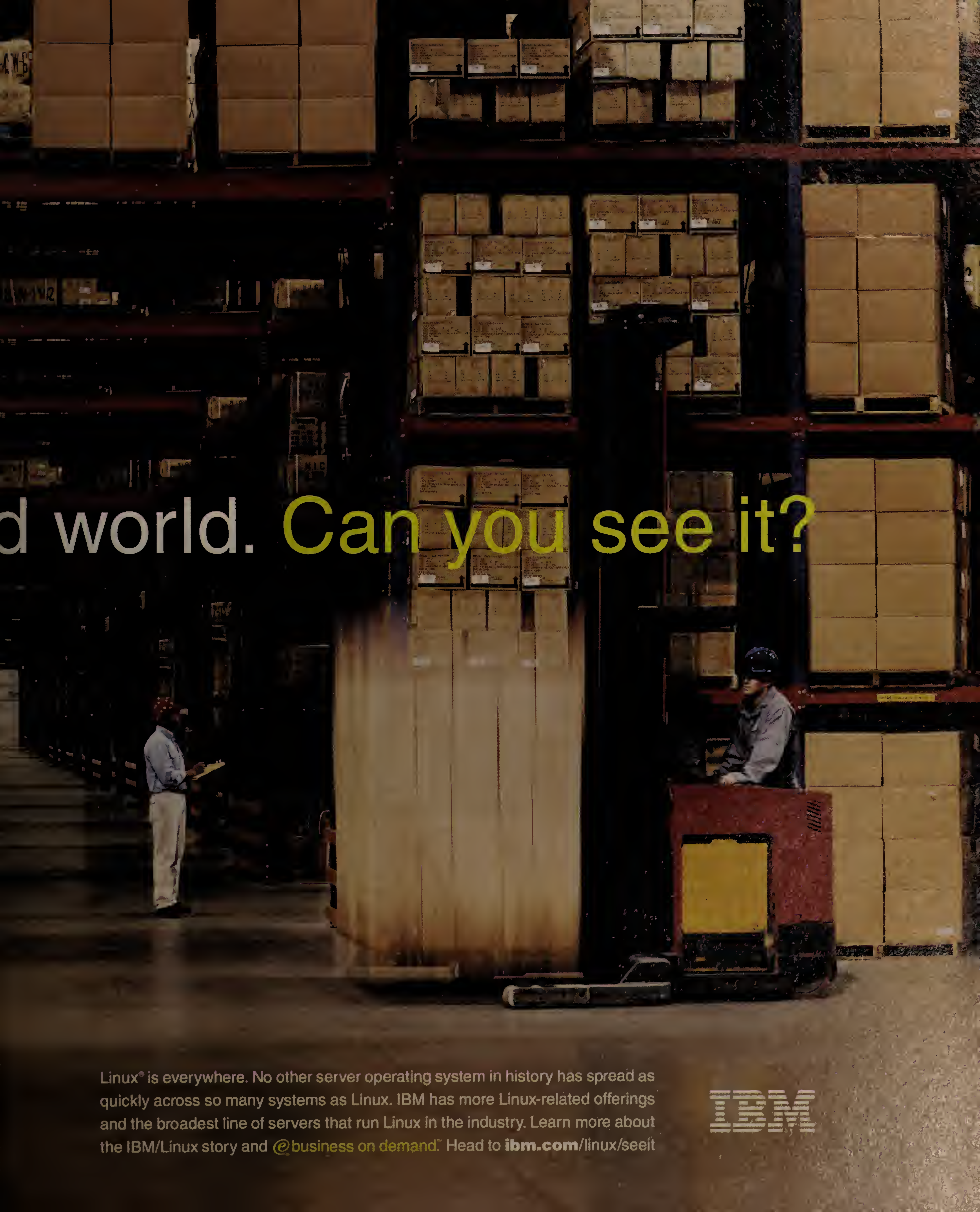

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EYE ON THE CARRIERS

Johna Till Johnson

Managing across the voice-data divide

One of the most interesting issues to emerge from the IP telephony research we've done at Nemertes Research is the challenge of getting voice and data teams to work together. Part of the problem is political: IP telephony often has been positioned as a way to eliminate all those "useless" voice specialists from within IT organizations.

Leave aside for a second the fact that anyone with such a mindset obviously fails to understand the sophistication and critical importance of voice communications. The real issue is that such an attitude virtually guarantees the failure of your IP telephony implementation. You just told a key group of people that the successful implementation of a project will involve the end of their jobs. Hmmm. What do you think the chances are of that project being implemented successfully?

Moreover, voice specialists often are as well educated as data personnel, have spent more years in the field, are held to higher standards — and are paid less. There are historical reasons for this (which tend to illustrate the general principle that you mess with the free market at your own risk — but that's another topic).

The net result is that data folks often have a chip on their shoulders about the inherent superiority of "their" technology, while voice people carry a burden of fear and resentment that hinders them from maximum productivity.

To fix this, first, managers should reassure the voice specialists that they won't lose their jobs at the end of the IP telephony deployment. They should do their best to address glaring salary or other compensation inequalities (there's often a 25% or more pay discrepancy between voice and data specialists).

If you haven't procured IP telephony products, have the voice and data teams separately create selection criteria and evaluate the vendors separately, promising a final "bake-off" for both sides at the end that uses the combined selection criteria of each.

I bet that the selection criteria from the voice and data teams won't overlap more than about 60%. You'll have an enlightening session or two during which you'll have to explain the definition of "mean opinion scores" and "call completion rate" to data guys, while expounding on the difference between packet loss, latency and jitter to voice experts. The process is worth it — you'll be far more confident in your vendor selection, and your voice and data staff will have a greater appreciation for each other's knowledge.

Once the selection is complete and you're ready to move into deployment, have the voice folks benchmark call quality and user feature sets while the data gurus do the quality-of-service benchmark and infrastructure assessment.

Finally, once the deployment is complete, ask voice folks to manage users while data folks manage the infrastructure. Why? Frankly, voice people tend to have more experience and more patience with stupid end-user tricks. Patience is a rare and precious quality these days.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Triple play

continued from page 31

flush that, Kennedy says.

Lastly, with the recently announced Fiber to the Premise (FTTP) initiative, RBOCs apparently are going to begin fiber buildouts soon. So they'll ostensibly be funneling money away from copper and DSL.

"They're attempting to do with FTTP what they did with DSL procurement [in 1996], which Alcatel won," Kennedy says of the RBOCs. "So Allied Telesyn is already behind the eight ball. The biggest procurement of the decade is about to begin, and Allied Telesyn is not on the short list."

The 7700 and 7400 DSLAMs are Network Equipment Building Standards 3 compliant, and feature a redundant switch fabric and power supplies plus hot-pluggable service modules that support any service in any slot in either chassis. Available service modules include an eight-port ADSL module with integral splitters and a 16-port module without splitters.

The 7700 DSLAM is a 17-slot, 9U chassis designed for central offices. It supports eight to 272 subscribers. The 7400 DSLAM is a seven-slot, 3U chassis designed for small serving offices or remote terminals. It supports eight to 112 subscribers.

Both units feature in-band or out-of-band management via SNMP, Telnet or command-line interface. ■

PROFILE: ALLIED TELESYN

Location: Bothell, Wash.

Founded: 1987

Key personnel: Takayoshi Oshima, chairman and CEO; Howard Kamerer, COO; Norio Suzuki, CFO; Phil Jopa, CTO.

Products: Ethernet and IP routers, hubs, switches, DSLAMs, extenders, media converters, transceivers and adapters; security appliances; access gateways; and optical transport systems.

Financials: $514 million in 2002 revenue.

Customers: 50,000

Employees: 2,500

Fast fact: Allied Telesyn claims to be the fourth-largest supplier of IP networking products to service providers and corporations.

CDN

continued from page 31

from a technology standpoint, but if they follow recent trends, I smell a lawsuit," says Greg Howard, principal analyst and founder of The HTRC Group. "Lawsuits are never good for the IT community."

Lawsuits have cast a pall over the CDN industry, which saw the wrangling escalate last year with Akamai Technologies and Cable & Wireless each seeking injunctions against the other's service, each saying the other's service infringed on patented technology. Meanwhile, Akamai accused Speedera Networks not only of patent infringement, but also of hacking into a protected database to access performance information. Speedera denies the charges.

"It's really uncertain as far as how [Mirror Image's patent] is going to impact the CDN industry. You need some sort of legal analysis to dig down into how these patents might be a concern for some of the competitors in the market," says John O'Keefe, senior Internet services analyst at Current Analysis.

O'Keefe says competitors such as Akamai and Speedera don't use the technology addressed in Mirror Image's patent and he doubts that it will affect the current leadership in the market. Today, Akamai leads the $270 million market with nearly 1,000 customers, while Speedera has more than 200 customers, and Mirror Image boasts about 150, according to IDC.

What this patent could do, industry observers say, is boost Mirror Image's profile in the industry.

"For Mirror Image customers, it's good to know that their service provider's core technology is now patented," O'Keefe says. "The fact that there may be additional stability — financial stability — through additional revenues that may be brought in through licensing is also a good thing." ■

Cogent buys time with Cisco deal

■ BY DENISE PAPPALARDO

Cogent Communications officials say they have bought themselves more time to turn the company around through debt reorganization and a new round of funding.

The ISP says it now has long-term debt of $27 million, thanks to a new deal with Cisco. Cogent was carrying more than $380 million just six months ago and Cisco Capital $263 million. In exchange for the majority of that debt, Cisco now owns about 18% of the ISP. Cogent still owes $17 million to the equipment vendor, but its first payment is not due until 2006.

STAN BAROUH

CEO Dave Schaeffer says Cogent may be looking to deal.

"Many companies that need to restructure debt turn to bankruptcy," says Cogent CEO Dave Schaeffer. "But that's a costly and traumatic process."

By working with creditors, Cogent is fixing its immediate and long-term debt issues and bringing in $41 million from new investors, Schaeffer says.

The cash comes from a group of investors including Jerusalem Venture Partners, Oak Investment Partners, Worldview Technology Partners, Broadview Capital Partners, Boulder Ventures, and Nassau Capital. Cogent will use the cash for operations, restructuring costs and also possible acquisition or merger opportunities, Schaeffer says.

Cogent acquired the majority of PSINet's assets and competitive local exchange carrier Allied Riser's assets last year, purchases that account for most of the company's revenue growth.

Last year, Cogent reported $52 million in revenue and a net loss of $62.2 million. In the first quarter of this year, the ISP reported revenue of $14.2 million and a net loss of $14.9 million.

Although Schaeffer did not mention any potential acquisition targets, Cable & Wireless has stated its intent to leave the U.S. market. Sprint has announced plans to exit the Web hosting business. Cogent still operates three data centers through its PSINet acquisitions.

Cogent sells dedicated IP services in 30 metropolitan markets, and operates a national network. Cogent offers two services, including dedicated IP at 100M bit/sec or 1G bit/sec for $1,000 and $10,000 per month, respectively. ■

Technology Update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

SPML eases information exchange

■ **BY DARRAN ROLLS**

Provisioning is the process of managing the allocation of system resources to employees, partners and contractors as part of identity management. Provisioning now is becoming a widely available network service, and with this maturation comes the need for open standards to support the integration of account and service management in identity infrastructures.

Service Provisioning Markup Language (SPML) is an XML-based framework for exchanging user, resource and service provisioning information between organizations. The framework is expected to establish an open, standard protocol for the integration and interoperability of service provisioning requests.

Developed by the Organization for the Advancement of Structured Information Standards' (OASIS) Provisioning Technical Service Committee (PTSC), SPML 1.0 is slated for ratification this summer.

PTSC interprets provisioning to mean the upfront preparation of IT system materials or supplies required to carry out predefined business activities. The committee goes beyond the initial contingency of providing resources to encompass the entire life-cycle management of these resources. This includes provisioning of digital services such as user accounts and access privileges on systems, networks and applications, as well as the provisioning of non-digital or physical resources such as cell phones and credit cards.

The sole purpose of a provisioning service in a network is to execute and manage provisioning requests. A given requesting authority, or client, sends the provisioning service a set of requests via a well-formed SPML document (an XML document that conforms to the SPML standard). Based on a pre-defined service execution model, the provisioning service takes the operations specified within the SPML document and executes provisioning actions on a pre-defined set of service targets or resources.

The general model for SPML is one in which clients perform protocol operations on servers. In this model, a client issues an SPML request describing the operation to be performed at a given service point or endpoint. The service point is then responsible for performing the necessary operations to implement the request. Once the operation is complete, the service point sends the client an SPML response detailing results or errors.

SPML aims to minimize the complexity of the client interface by supporting widespread deployment of applications that can issue standardized service provisioning requests. To make this possible, SPML provides a simple set of core operations for add, modify, delete and search functions, and an open model for the definition and discovery of service schema (the data required to subscribe to a service).

To complement this, SPML Version 1.0 provides an operations extension model and a synchronous and asynchronous batch request/response processing model. This lets a requesting authority batch sets of provisioning actions and control the execution semantics for individual requests as well as for the batch as a whole.

SPML allows cooperating parties to securely exchange provisioning and service subscription requests using an open-standards-based protocol. It is easy to understand and work with, and is supported by an ever-widening set of vendors.

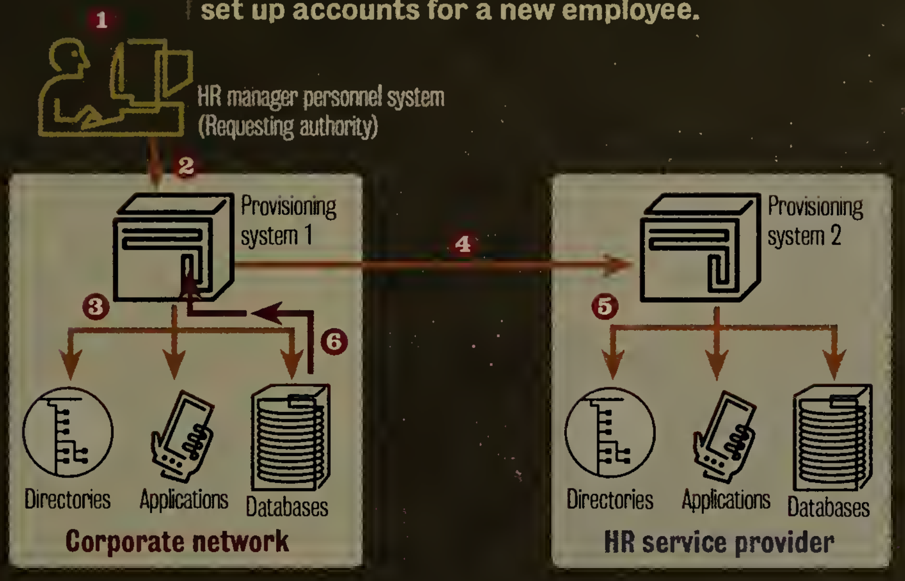
As more infrastructure becomes identity-centric and companies start to build and deploy Web services, SPML will be a critical element of an end-to-end standards-based identity management strategy.

Rolls is director of technology for Waveset and chair of the OASIS Provisioning Services Technical Committee. He can be reached at Darran.Rolls@waveset.com.

■ **HOW IT WORKS**

SPML

SPML documents specify a set of operations for network services to execute. In this example, SPML is used to set up accounts for a new employee.



1 A manager makes a change in a personnel system to add an employee.

2 The personnel system, or requesting authority, constructs an SPML document and requests creation of the new employee's accounts across the company.

3 Provisioning system 1 takes the data passed in the SPML document, constructs its own SPML document and executes commands on a set of internal resources to create the employee's accounts in applications, databases, e-mail systems and the like.

4 Provisioning system 1 also forwards an SPML request to provisioning system 2 to add the employee to a 401 (k) system running at a third-party HR service provider.

5 Provisioning system 2 executes commands on a set of internal resources to create the employee's 401 (k) account.

6 Each internal resource reports back success/failure status to the provisioning systems for potential further action, such as notification and retry on a failure.

Ask Dr. Internet

By Steve Blass

We use a software VPN to connect to our Exchange server at headquarters. Our office is on a ship with a satellite Internet connection. Each person in our office shares the Internet connection via a 24-port switch connected to an SMC Barricade router. When someone connects to the VPN, he has to activate specific ports, and deactivate them for everyone else on the router. We have a computer (it runs Windows 2000 Server) that acts as a file and print server, with one network interface card. Can we add another NIC to the server and use the server software for the Internet connection, thus allowing multiple VPN connections?

Yes, Windows 2000 Server can support a second NIC and be configured as your VPN endpoint for connecting back to the Exchange server. Whether you can set up the Barricade router to pass the traffic needed to successfully support VPN connections across the network boundary depends on your security policy. But it sounds like you all have administrator privileges on the router, so it should be workable. You do need to identify the ports and protocols your VPN requires, and ensure that the router isn't blocking them.

Blass, a network architect at Change@Work can be reached at dr.internet@changeatwork.com

GEARHEAD
INSIDE THE
NETWORK
MACHINE

Mark
Gibbs

The Linux server at the heart of our WLAN

Last week we got our Raritan Paragon keyboard, video and monitor switch up and running so that we could build the wireless LAN for the Web Metrics conference without having to run to and from the computer room while we installed software. And the first thing on our installation agenda was Red Hat Linux 9.

We had successfully upgraded an old server from Red Hat Linux 7 to Red Hat Linux 9 but its performance wasn't great and we needed more RAM. So we visited our friends at MJP Computers and purchased a white box system with 2G bytes of RAM (we have big plans) and a Serial Advanced Technology Attachment (ATA) drive.

But when we tried to set up Red Hat Linux 9 the installer complained that there was no disk drive. After lots of research, including conferring with Aron Hsiao, author of *Teach Yourself Red Hat Linux 9 in 24 Hours* (a fine introduction to Linux), we discovered that while Serial ATA works fine for Windows you have to do strange and arcane things when you're using Linux (such as recompiling the kernel). Unfortunately, these things don't seem guaranteed to work. If you know how to make Serial ATA drives work under Red Hat Linux 9, please drop us a note and we will tell the world.

What exactly is Serial ATA , you ask? Well, in the beginning desktop storage systems used the Integrated Data Electronics (IDE) interface, also known as Parallel ATA or Ultra ATA/100. That has been the desktop standard since the 1980s. Then a group of vendors got together and formed SerialATA.org to develop and promote a serial version of the ATA interface to simplify disk installation and configuration.

It also happens to be higher performance. Serial ATA serializes data sent to or from a drive in packets that are transferred to or from the host up to 50% faster than with Parallel ATA. The data transfer rate can reach 150M byte/sec and the next generation of Serial ATA, due in the middle of next year, is expected to raise the top rate to 300M byte/sec. The generation after that, due in 2007, promises a top speed of 600M byte/sec.

Serial ATA also improves cabling and connectors used to connect drives to host systems. The cables used for Serial ATA drives are thinner and can be longer (up to 1 meter) than those used with Parallel ATA drives. This improves airflow through computer cabinets. The new connectors used with Serial ATA drives also have a blind-mate type of connection, which removes the risk of bent connector pins and can be connected without looking.

Linux undoubtedly will support Serial ATA drives in the near future, but before you go for a Serial ATA -based Linux solution, make sure that Serial ATA support is not only available but stable and documented. We solved our problem by swapping the Serial ATA drive for a couple of good ol' fashioned Parallel ATA drives.

Installation of Red Hat Linux 9 is pretty simple, although we advise you to read up on disk partitioning. Red Hat Linux 9 provides all of the requisite tools for partitioning and automatically can divvy up your drives, but if you go for the auto option make sure there is no data on the target drives that you can't afford to lose. As with any server installation, whether Windows, Linux or anything else, installing on a clean system is the best way to go.

The other consideration when installing Red Hat Linux 9 is to leave plenty of time. A full installation can take two to three hours, which is, in our experience, not dissimilar to the time required for a Windows installation.

And once you've finished installing and if you are connected to the 'Net, a utility called the Red Hat Network Alert Notification Tool will poll the Red Hat servers to see which of your packages (aka applications) have updates available. In our case that seemed to be pretty much everything, so we spent another hour downloading and updating. Again, when you consider the time required to download and install Windows service packs and patches, the time required for a first-time setup of a Linux system and a Windows system is comparable.

But in the end, what a system! Red Hat Linux 9 easily can be tailored for as large or small an installation as you require. It includes Linux Kernel 2.4.20, the GNU Compiler Collection Version 3.2.1 (this consists of front ends and libraries for C, C++, Objective-C, Fortran, Java and Ada), GNU libc 2.3.2 (that's the C library of system calls, which includes the Native Posix Thread Library), and the Apache httpd 2.0 Web server. There's a new and reorganized Gnome GUI and tons of applications and tools we'll discuss next week.

Install your thoughts on gearhead @gibbs.com.

Cool Tools

Quick takes on high-tech toys

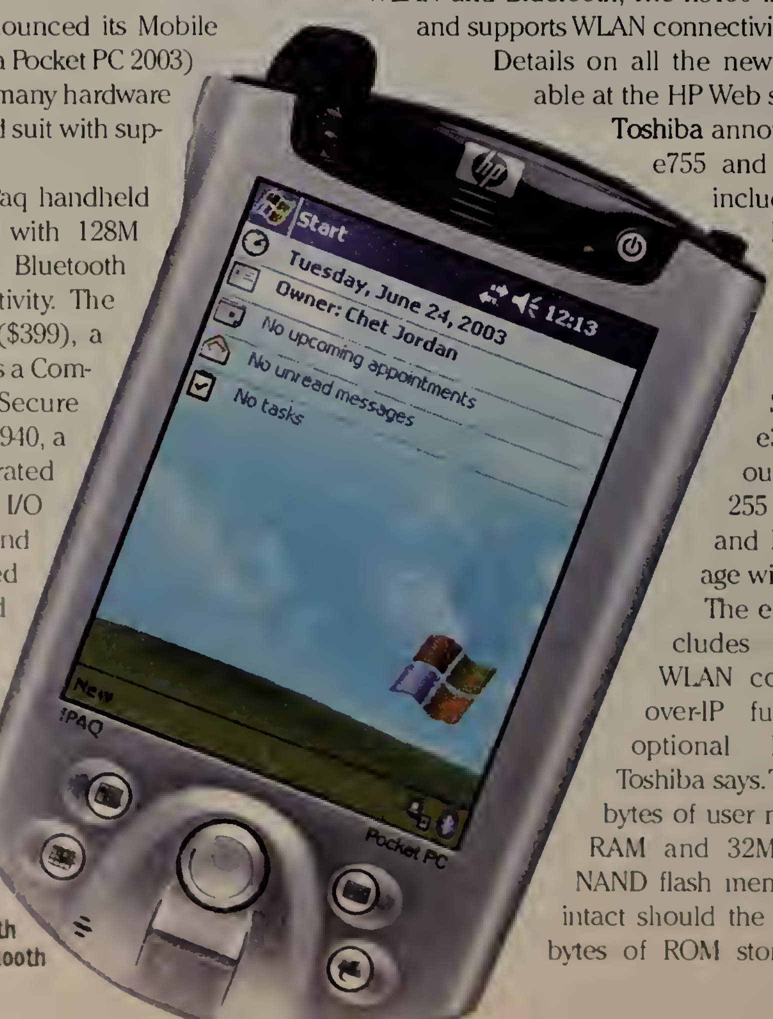
By Keith Shaw

New handhelds support Pocket PC 2003

Microsoft last week announced its Mobile 2003 for Pocket PC (aka Pocket PC 2003) operating system, and many hardware and software vendors followed suit with supporting products.

HP announced four new iPaq handheld models, including a device with 128M bytes of RAM and integrated Bluetooth and wireless LAN connectivity. The devices include the h2210 ($399), a sleek smaller unit that includes a Compact Flash (Type II) and Secure Digital expansion slot; the h1940, a $299 slim iPAQ with integrated Bluetooth and a Secure Digital I/O slot; and the h5150 ($549) and h5550 ($649), power-packed models that include integrated Bluetooth, 802.11b wireless LAN (WLAN) and up to 128M bytes of RAM.

The h5550 also includes a biometric fingerprint reader to help secure data on the device by authenticating the owner's fingerprint. The biometrics can be combined with a PIN or password, HP says. The h5550 runs on a 400-MHz Intel xScale processor, has a 3.8-inch color display (TFT LCD) with more than 65,000 colors and has up to 17M bytes of file storage space. The h5550 includes integrated WLAN and Bluetooth; The h5150 includes the Bluetooth, and supports WLAN connectivity via an add-on card.

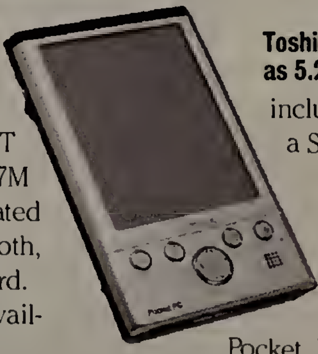


HP's new iPaq handhelds come with features such as integrated Bluetooth and WLAN connectivity.

Details on all the new handhelds are available at the HP Web site.

Toshiba announced two devices, the e755 and e355. The $299 e355 includes a built-in Secure Digital slot for expansion, and can connect wirelessly via Bluetooth with an optional Bluetooth Secure Digital card. The e355 weighs only 5.2 ounces, runs an Intel PXA-255 processor at 300 MHz, and has 16M bytes of storage with 64M bytes of RAM.

The e755 costs $499 and includes integrated 802.11b WLAN connectivity, and voice-over-IP functions through an optional hands-free headset, Toshiba says. The e755 includes 96M bytes of user memory (64M bytes of RAM and 32M bytes of dedicated NAND flash memory, which keeps files intact should the battery die), and 32M bytes of ROM storage. The device also includes a Compact Flash Type II slot and a Secure Digital slot.



Toshiba's new handeld devices weigh as little as 5.2 ounces.

JVC announced plans to build a Mobile 2003-based PDA with audio/video features, including MPEG-4 video capture, playback and wireless video streaming. The JVC io Pocket PC series (MP-PV131, $500, and MP-PV331, $600) will include integrated WLAN connectivity, and an audio-video player that supports MP3, WAV and OGG audio files, and AVI and ASF video files. The devices are expected to be available in September.

Symbol Technologies says its PPT 8800 series of industrial PDAs will include the Mobile 2003 software. The PDAs will be aimed at mobile workers in field sales, service, delivery and public safety markets.

Dell announced that its Axim X5 handheld computer will support the new software from Microsoft. The company also debuted an Axim version that includes McAfee's VirusScan PDA software. New Axim customers can register for 30 days of free virus scanning or order a 12-month subscription for $19. Existing customers can get a Mobile 2003 upgrade for $29 and order the virus-scanning software from McAfee. The Axim starts at $199. For $268 you can get one that includes a CompactFlash 802.11b wireless card.

Gateway announced a new line of PDAs that will be available in the third quarter. They will be geared for business professionals and will include the Mobile 2003 software. The entry into the handheld market is part of Gateway's move away from only PCs and into a broader technology product strategy.

Shaw can be reached at kshaw@nww.com.

EASILY DELIVER APPLICATIONS TO THE SCREENS OF IP TELEPHONES...TODAY

Across enterprises, college campuses, in hospitals, retail establishments, manufacturing plants and financial institutions, IT organizations are being asked to make information available to a growing list of users without being given the budget for additional computers or application development resources.

As enterprises continue to deploy IP Telephony systems, one of their biggest challenges remains the cost, time and effort associated with delivering applications that take full advantage of the large screens, browsers, high-speed connections, and speakers that are available on IP telephones.

The most affordable, expedient answer to these issues is to extend business applications currently restricted for use on PCs and laptops by transforming them into a format suitable for interaction on the screens of IP telephones, regardless of the manufacturer.

"We have seen a real customer need for applications delivered to the display of IP telephones," said Christin Flynn, Director, Communications Network Infrastructure with the Yankee Group. "The Net6 Transformation Gateway (TG) is he first product on the market focused exclusively on enabling organizations to easily transform existing applications for interaction with any IP screen telephone —whether from Avaya, Cisco, Mitel, NEC, Nortel Networks or Siemens."

HOW IT WORKS

Net6 TG™ acts as a reverse proxy between any screen-based IP telephone and business applications. The Net6 TG receives a request from an IP telephone to access a specific application, recognizes the type of device accessing the application, and determines the characteristics of the IP telephone that is making the request.

Using rules provided by the Net6 Design Studio™, the Net6 TG extracts the appropriate data from the application, formats the data, in terms of screen size, resolution, memory, or graphics support for the specific IP telephone, and sends the data to the IP telephone.

The Net6 Design Studio is the intuitive "point-and-click" development tool that enables an administrator to select the desired information from an application and simply define rules for how it should appear on each IP screen telephone or device.

Once the transformation rules are complete, they are saved on the Net6 TG where they immediately transform requests in real time from IP telephones that are accessing the applications. The outcome is an optimized user experience on any IP telephone, regardless of variations in screen size, resolution, memory or graphics support — now possible without expensive and time-consuming software development or major changes in the source application.

Net6 TG is also designed to deliver applications for use on wireless devices, such as Pocket PC or Palm PDAs, RIM pagers or web-enabled cellular telephones. Once transformed for IP telephones, an application can easily be accessed by wireless devices... across all networks, including 802.11, WiFi, CDMA 1X-RTT or GPRS.

With the Net6 TG, organizations can deliver intelligent voice and data services on the screens and speakers of IP telephones and wireless devices, turning them into muti-function appliances that offer a real-world competitive advantage.

ScreenTop
June 27, 2003
- My Visual Voice Messages
- My Personal Conference Bridge
- Microsoft Exchange
- Salesforce.com Updates
- Oracle Inventory Reports
- Customer Service Statistics
Next
Back
Menu
Options

Get a FREE copy of the Net6 "IP Telephone Apps Made Easy" by visiting www.net6.com/ipt/AME3.cfm

Net6

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opinions!

EDITORIAL

John Dix

Straining the alphabet WLAN soup

Just when you thought you had your wireless LAN strategy all mapped out, the IEEE's standards board ratified 802.11g, which ups the data rate of the popular 802.11b WLAN standard, and the FCC is proposing to more than double the number of frequencies available to 802.11a.

How does it add up? Let's review.

The newly approved 802.11g standard bumps up 802.11b from 11M bit/sec to 54M bit/sec. Both standards use radio frequencies in the 2.4GHz range, and 802.11g devices can fall back to 802.11b data rates, meaning 802.11g access points can support existing 802.11b nodes.

Our tests (www.nwfusion.com, DocFinder: 6529) show that 802.11g throughput is 15M to 24M bit/sec, about four to five times the 4M to 5M bit/sec throughput of 802.11b. This means 802.11g networks should support four to five times the number of users as 802.11b nets.

Essentially, 802.11g is an amendment to 802.11b, bringing it up to 802.11a's data rate. But unlike 802.11b/11g, 802.11a uses frequencies in the 5GHz range, free from interference from devices such as cell phones that can be a problem for 802.11b/11g. More importantly, it is free from interference from the growing population of 802.11b devices. Stan Shatt, an analyst with Forrester Research, says a client in Oklahoma did a scan before building a WLAN and picked up signals from 11 neighboring 802.11b WLANs.

The FCC's proposal to make more frequencies available for 802.11a — upping the number of channels that each access point can support from 11 to 24 — will make 802.11a even more immune to interference. By comparison, 802.11b/11g access points only support three non-overlapping channels. That makes 802.11a ideal for installations with high concentrations of users who need high-speed access.

Is your head spinning yet? Don't worry, you can avoid the alphabet soup by deploying dual radio 802.11a/11g access points and get the best of what 802.11a has to offer, and the broad reach and backward-compatibility of 802.11g. However, this is: 1) the most expensive solution today; and 2) a compromise. As Shatt says, in dual mode environments you can't optimize for either approach so you end up with a network that is the best of neither.

Other analysts say the whole 802.11a/b/g question will be moot in the longer term because all three will be built into silicon and available in all products. But it will take some time to get there so the dual-radio approach might be the safest bet if you're worried about painting yourself into a corner.

— John Dix
Editor in chief
jdix@nww.com

Apache as alternative

With all due respect to your story "Apache earning its stripes" (www.nwfusion.com, DocFinder: 6523), I chose Apache because I found Internet Information Server inadequate and difficult to manage. The IIS security lockdown tool, made by Microsoft, turns off ASP scripting, Microsoft's flagship Web programming language before .Net. Worse yet, I didn't know that until after I ran the tool in express mode.

As for needing a management interface, one called Webmin exists on Unix platforms. Webmin runs its own Web server, through which I can control any aspect of the box as if I was at the console.

Corey Furman
Selinsgrove, Pa.

Catalyst, not IOS

The story "Challenges dog Cisco as company's role expands" (DocFinder: 6524) states that IOS runs all of Cisco's equipment. This is not true. Most of the switching equipment, including all of the multi-layer switches such as the 6500 series, is run by Catalyst OS, not IOS. The routing equipment is mainly IOS. The problem is not in IOS, but in combining the two operating systems.

Avraham Sonenthal
Baltimore

Apt analogy

In his Backspin column "Technology solutions and problems" (DocFinder: 6525), Mark Gibbs tells how King Canute attempted to "turn back the tide of the sea." Actually, King Canute ordered the tide back to prove that he couldn't — at least that was how I was told the story. The more-or-less reliable BBC confirms that at DocFinder: 6527.

But couldn't Disney be doing the same thing with its disintegrating DVD? Doing something dumb to prove that they need stronger copyright laws?

Jeremy Renton
Automation analyst
Dealey, Renton & Associates
Oakland, Calif.

Mark Gibbs might be missing the point regarding Disney's self-destructing DVDs. It's not so much a way to prevent piracy, but a way to widen their rental market. This way, users don't need to return the discs, nor do places need to set up a rental return system.

Contrary to what tree huggers say, the discs can be recycled (www.flexplay.com/recycle.html), but you have to go out of your way to mail them in. I like this system. It will be interesting to see if it takes off.

Ian Sadkovich
Hardware editor
CDRLabs.com
Madison, Wis.

Different motives

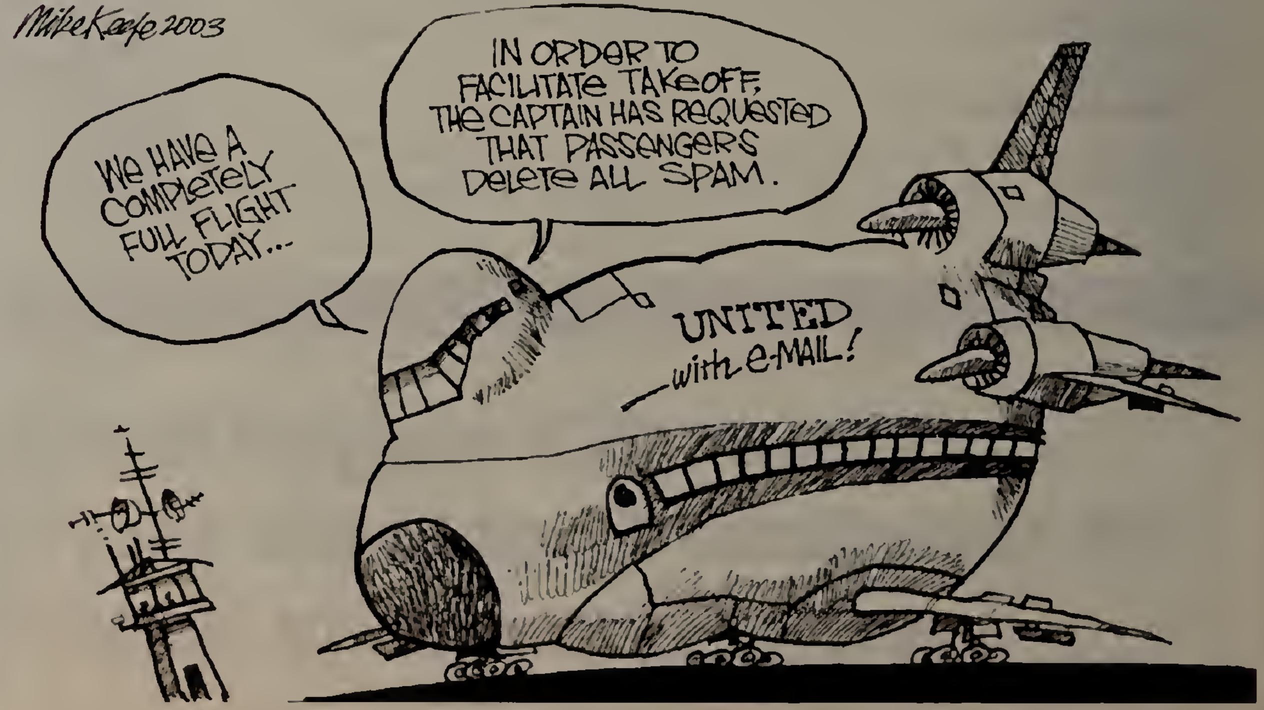
In his 'Net Buzz column "Oh, those spam filters" (DocFinder: 6526), Paul McNamara expresses some facts of e-life: Filtering produces false positives, and false positives reduce productivity.

Too many people look at spam filtering as an extension of anti-virus software. This view denies the economic reality: spammers spam for money, while virus writers write for kicks. Two entirely different motives, a fact that can be exploited in network defense. If you slow spam down, rather than filter it, you get a lot less of it, because this reverses the economics of spam, which are highly time-sensitive.

Stephen Cobb
Senior vice president, research and education
ePrivacy Group
Paoli, Pa.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

More online! www.nwfusion.com Find out what readers are saying about these and other topics. **DocFinder: 6522**


MikeKeefe2003
WE HAVE A COMPLETELY FULL FLIGHT TODAY...
IN ORDER TO FACILITATE TAKEOFF, THE CAPTAIN HAS REQUESTED THAT PASSENGERS DELETE ALL SPAM.
UNITED with e-MAIL!

USER VIEW

Chuck Yoke

Why IT still matters

At the risk of beating the metaphorical dead horse, I'd like to add to the recent flurry of responses to the *Harvard Business Review* story on IT. In case you've been on vacation for the last month, the May issue contained an story titled "IT doesn't matter."

The story says IT basically has become a ubiquitous commodity that is available to everyone and that, as such, it no longer provides any strategic value. But IT in fact still is needed, even though it has become an operational utility that no longer warrants large investments. The ongoing focus of IT management should be on risk management, not strategic planning.

As a business technologist who sees IT as both strategic and operational, I somewhat agree with the views expressed in the story. IT has become ubiquitous. A Web site might have brought strategic marketing value three years ago; today, everyone — including my teen-age daughter — has a Web page. High-speed data networks are commonplace and, with the exception of complex networks, basically are becoming plug-and-play implementations.

So I agree that IT itself — the systems, networks and applications — doesn't bring a true marketing or competitive strategic value. And I agree that technologists need to focus more on the operational management of their infrastructures and how they are utilized in their corporations. What I don't agree with is that "IT doesn't matter."

The story also says IT needs to transition "from offense to defense." Companies need to take a defensive IT posture and spend less, follow instead of lead and focus on vulnerabilities within their IT infrastructures instead of potential IT opportunities.

In the current economy, all these statements are true, and companies need to heed this advice. But that doesn't mean IT doesn't matter. IT might be even more important, as the adage "a good defense is the best offense" has even more relevance in today's business climate.

There are tremendous opportunities within IT to drive cost savings, reduce operational expenses and enhance overall corporate value. While many of these opportunities lie in more effective management of the IT infrastructure, there are still operationally strategic areas where IT can be used to manage workloads more effectively, enhance communications, increase productivity and reduce operational costs.

Many of us have been advocating this view of IT for years. The belief that IT only brings competitive strategic value was erroneous. IT itself never really brought any competitive value; it was the application of IT that brought the value. One company saw an Intel-based computer solely as a repository of personal files, while another company saw the same device as an Internet-based marketing tool. Same IT infrastructure, but different applications.

IT still brings strategic value today. Granted, it is not in the field of market competitiveness. But there is still a wealth of operationally strategic value that IT can bring to increase a company's effectiveness and enhance overall shareholder value.

Yoke is a business solutions engineer for a corporate network in Denver. He can be reached at ckyoke@yahoo.com.

There are tremendous opportunities within IT to drive cost savings, reduce operational expenses and enhance overall corporate value.

ON SECURITY

Winn Schwartau

Get smart about intelligence

Recently a reporter called the Pentagon's public affairs office and asked for the location and itinerary of certain aircraft carriers and their battle groups. He was told that this information is classified and not available to the media.

The reporter then went to Google, entered the name of the aircraft carrier, found its home page and printed out the ship's entire schedule for the next year. He also got all sorts of juicy information about the captain, his military history and tons of tidbits on the senior officers.

You might think that no company in its right mind openly would publish on the Internet key data about its firm, staff, finances or technical issues. But almost every major U.S. company does exactly that. This is what open source intelligence is all about.

Traditionally, intelligence has been the domain of the CIA and foreign national intelligence services. But today, Robert Steele, former CIA case officer and now president of OSS, says his personal unclassified contacts and information sources could do as well as, if not better than, the combined resources of the intelligence community in a comparative intelligence analysis.

Say I want to know secrets about your company. Maybe I'm a competitor; maybe I'm a potential attacker. Either way, I'm going to employ generally non-technical intelligence means from my desktop such as Google, Securities and Exchange Commission databases such as Edgar, and the American Registry for Internet Numbers, which provides a convenient search function for registered domain owners. In a matter of minutes, I can find an amazing array of information, including:

- Names, biographies and contact information (both work and home) for key executives.
- Information about the corporation's infrastructure and Internet connectivity.
- Lists of the corporation's service providers and major IT equipment suppliers.
- Testing and policy guides, personnel procedures, disaster-recovery services and methods of business continuity.
- User IDs of all staff on internal mail and groupware systems.
- Technical problems the company is experiencing (innocently divulged in chat rooms by engineers seeking help from peers).

Does your company want this sort of information available to everyone on the Internet? Probably not. But what can you do about it?

First of all, you have to realize that open source information is valuable to the bad guys and potentially harmful to you. The next step is to perform an honest, in-depth assessment of your exposure to this simple, yet highly effective, means of intelligence gathering.

Then you must make some tough policy decisions. What information on your corporate home page, while nice for marketing and image, has the potential to damage your firm if used by the wrong people? Can technical staff use their work e-mail addresses when conducting Internet research, or should they have aliases? How much Internet travel should be done anonymously to hide any trails that could give away valuable information to a competitor or adversary?

I have never been a supporter of security by obscurity. I believe cryptographic source code and algorithms should be made fully public for peer testing and acceptance. But I also believe in controlling the release of information that can be used against me. Hanging clean or dirty laundry on the Internet in the name of self-promotion is a sure way to divulge too much information — unless clear-cut policy and review procedures are in place.

Companies need to form procedures to control what corporate information is released, how it is released and how it relates to all other public information releases the company makes. The combined results could show the company unintentionally is giving away the keys to its own kingdom.

Schwartau is president of Interpact, a security awareness consulting firm, and author of 14 books, including Pearl Harbor Dot Com. *He can be reached at winn@thesecurityawarenesscompany.com.*

You have to realize that open source information is valuable to the bad guys and potentially harmful to you.

NetworkWorld SECTOR SPOTLIGHT

INSURANCE INDUSTRY

How emerging technologies are transforming key vertical industries.

Underwriting XML

Insurance companies calculate that Web services are a worthwhile risk for solving their systems integration woes.

■ BY JOHN FONTANA

After 24 years of IT work in the insurance industry, Rick Laabs can clearly hear the advancing footsteps of a technological revolution.

That revolution is XML and Web services, says Laabs, vice president of product management American International Group Technologies (AIGT) of Livingston, N.J., the IT arm of $67.5 billion insurance company AIG. He says these technologies finally might erode the data and systems integration headaches that have historically plagued the process-driven insurance industry and its myriad disparate systems.

Insurers have such distinct information silos, experts say, that they can't easily share data up and down the supply chain. It's so bad that a single company often can't aggregate information on all the services it provides to a single customer.

"If there is going to be anything close to a silver bullet for the industry, it is XML," Laabs says. "XML is the first true opportunity that the insurance industry has to address the integration issue."

He says XML and Web services has the potential to deliver two Holy Grails: straight-through processing, which eliminates the need for manual intervention to manipulate data by integrating systems; and Single Entry Multiple Company Interface (SEMCI), which lets data be keyed in once and sent to multiple recipients regardless of platform.

IT strategy and research firm Celent estimates that 23% of the $6.3 billion the insurance industry spent last year on new projects went to fund integration work because of the lack of common data models and communications protocols. The firm says the insurance sector could save $250 million on integration costs per year by adopting an industry-specific brand of XML, called ACORD XML, for integrating legacy systems, internal applications, and data and transaction streams among agents, partners and carriers.

"XML represents a significant opportunity to streamline the integration process," says Matthew Josefowicz, manager of the insurance group for Celent. "It won't change the business of selling insurance, but it should relieve some of the IT burden."

ACORD XML is a set of nearly 600 standard messaging formats for executing transactions and exchanging policy information in three areas of insurance: property/casualty, life and re-insurance. The standards are being developed by the Association for Cooperative Operations Research and Development (ACORD), which has spent 30 years setting insurance industry standards, first with paper forms, then with electronic data interchange and now XML.

"Most transactions today are still EDI, but we are seeing the transition over to XML," says Lloyd Chumbley, director of standards for ACORD, which held its annual conference last month. EDI transactions, typically exchanged through an insurance hub called IVANS' Transformation Station, adhere to ACORD's AL3 standard. The AL3 standard is a batch model, whereas XML delivers real-time integration.

AIGT's Laabs still uses AL3, but it is being phased out and replaced by XML, which is now the strategic technology.

As Laabs helps oversee the adoption of XML, the focus today is on the company's WINS Digital system for property/casualty insurance processing. The software has been upgraded with a GUI, built with Java, Java 2 Platform Enterprise Edition, IBM's WebSphere and XML Web services. Agents use the thin-client WINS to access back-end mainframes and databases regardless of data formats.

"We're using XML to extend the system to extranets and portals," Laabs says. "We can do quotes, rates, renewals — the whole gamut of transactions." The previous interface was a green screen that enforced a rigid data entry and workflow process. XML lets AIGT be more flexible and change business rules and back-end systems without having to alter the GUI.

There are challenges for the industry, however, in that support for ACORD XML in vendor products and end-user deployments has yet to hit critical mass. This limits integration internally and externally. Also, highly customized insurance carrier systems will be difficult if not impossible to fully convert.

It is early in the process. A recent IDC study on vertical industry adoption of Web services revealed penetration into the insurance industry at only 25%. But the report showed that nearly one-third of respondents plan to invest in the technology this year.

Jack Serfass, president and co-founder of Swingtide, which offers XML training classes and develops analysis software focused on XML-based networks, says the insurance industry is ripe for XML Web services for three reasons: Insurance has indirect distribution networks, ACORD XML standards are maturing, and paper-based products easily can move online.

"The more systems that can plug and play in the distributed network, the more value you get out of the network. You can cut process times from days to minutes," Serfass says.

That has been the benefit for Providence Washington Insurance, in Providence, R.I. The company, which relies on a network of independent agents, last November replaced a paper-based system for delivering policy quotes with XML Web services. Agents feed data through IVANS into the company's XML transformation engine, which is built on MetaServer's BPI-in-a-box. The engine converts the data to the format of the back-end systems, including AS-400, and DB2 and SQL Server databases, and returns a rate quote.

"The ease of doing business has been enhanced," says Ed Leveille, CIO for Providence.

"The speed of finishing a policy has been reduced to minutes from weeks," he adds.

INSURANCE INDUSTRY: AT A GLANCE

- **IT spending:** The industry spent $18 billion on IT in 2002 and is expected to spend $19.3 billion this year and $20.6 billion in 2004.
- **Integration:** Roughly 23% of the $6.3 billion spent last year on new projects in the U.S. insurance industry toward integration work.
- **Savings:** Adopters of ACORD XML report average integration cost savings of 20% to 30%, which means that mass adoption of standards could save the U.S. insurance industry $250 million annually.
- **Adoption:** According to IDC, upwards of one-third of insurance companies plan to make investments in Web services before the end of the year, which will significantly increase the penetration rate of the technology in the industry from its current level of 25%.
- **Support:** Seventy-two percent of the top 50 U.S. property/casualty carriers, 46% of the top 50 life insurance carriers and 52% of the top global re-insurance carriers are members of ACORD.

SOURCES: CELENT, IDC

The next step is to build Web services that electronically issue and print a policy; automate fraud and credit checks, which still are done manually; and incorporate commercial lines of insurance in addition to the current Web services for home and auto.

"The old EDI and AL3 integration projects were cost-prohibitive to us," says Leveille, who spent four months and $300,000 on his initial Web services deployment. "Standards made it easier because we also get extensibility and flexibility."

Experts say the next two to four years should bring widespread adoption of ACORD XML, which will open a distributed network of carriers and agents.

"Converting will be a long-term play," Celent's Josefowicz says. "ROI is not a six-month proposition." ■

IP TELEPHONY MANAGEMENT TOOLS

Stepping up to the IP telephony mgmt. table

BY EDWIN MIER

A converged IP PBX system brings with it new and expanded management responsibilities for things such as voice quality, quality of service, bandwidth consumption, security, voice-over-IP parameter settings, IP call routing and softphone deployment.

In this round of testing, we set out to determine how well IP PBX vendors are making those extra management tasks easier to bear.

We tested products from four vendors and found that in some areas — configuration, for example — the tools were adequate across the board (for details on the IP PBX configurations submitted and pricing go to www.nwfusion.com, DocFinder: 6521). However, for real-time monitoring, generating user-settable alarms and traps, and long-term trend reporting of IP-telephony activity — clear winners and losers are emerging.

All the leading IP PBX vendors were invited to participate in our test. Alcatel, Avaya, Siemens and Vertical Networks accepted. Shoreline Communications and Nortel declined without explanation. 3Com and Mitel Networks said they were in the middle of product upgrades. Cisco originally had agreed to be in the test but then declined saying new pieces of its IP-telephony management toolbox weren't ready for testing.

Vendors could submit any of the management tools they offer to monitor or control an IP-telephony-only environment, and third-party packages that augmented their own products. Except for Vertical, all vendors provided a mixed bag of tools. Vertical based all its management on the native Java-based browser interface that comes free with its system.

Because vendors submitted a mix of their own plus third-party tools, we decided not to render a scorecard for this review. However, there are several areas in which vendors differentiate themselves and which could be factors in your buying decision.

Different strokes

Real-time monitoring: Only Avaya and Alcatel offer users a straightforward way to see what QoS conditions — in terms of jitter and packet loss — current VoIP calls are experiencing (see "Real-Time Monitoring, right). Other factors include:

Phone configuration: Siemens embraces phone-side configuration of IP-telephony parameters. For example, setting the jitter-buffer size, a key parameter affecting VoIP voice quality, can be modified only on each individual IP phone; there is no centralized, systemwide jitter-buffer control in the Siemens environment.

Vertical's approach, by comparison, is weighted more heavily with the system administrator. IP PBX management should be centralized when possible. Implementing settings on a per-phone basis breeds inefficiency. Also with access to their own VoIP parameters, some users inevitably will experiment with their phone configuration. Also, centrally monitoring a whole network or subnet of IP phones yields a much better view of what's happening — in terms of bandwidth consumption or QoS performance, for example — than you get by querying individual phones.

Reboot time: Another key issue is how long it takes an IP phone to reboot. Siemens was best at 20 seconds. At the other end of the scale, Vertical's IP phones didn't come back up for 2 minutes, 15 seconds. Almost all IP-phone configuration changes require a reboot. The difference between 20 seconds and two-plus minutes certainly affects end-user disruption and downtime, and whether changes best are applied in real time or after-hours.

Configuring QoS: Avaya and Vertical have very reasonable type of service (TOS) and Differentiated Services values implemented and enabled by default (see "Configuration, page 42). But neither Alcatel nor Siemens have any default QoS set. Unless the user inputs one, all VoIP traffic streams are sent on a best-effort basis, riding along with all other data traffic. Alcatel's interface for setting or changing VoIP QoS is especially cryptic.

Events and alarms: IP PBX vendors have not done much in updating their event and alarm notifications to address IP telephony concerns (see "Events, alarms, traps," page 43). For example, only Avaya lets users set thresholds and get alarms when bad QoS conditions are encountered. Alcatel offers some minimal capability in this regard, but Siemens and Vertical offer none.

Trend reporting: The effectiveness of long-term and trend reporting depends heavily on whether the IP PBX includes useful IP-specific data elements in its call-detail records (CDR) (see "Trend, activity reports," page 43). Vertical provides the richest set of IP call details, followed closely by Alcatel.

Avaya and Siemens provide very little useful, IP-specific call information in their call records. However, Avaya compensates for this with a new specialty management tool, called VoIP

Comparing IP PBX management: **Real-time monitoring**

Task/criteria (to monitor or determine):	Alcatel	Avaya	Siemens	Vertical
Status of IP phone calls in progress	★★	★★★	★	★★★
IP phone call bandwidth	★★	★★		★
Whether silence suppression is enabled	★★	★★		★★★
T-1 trunk utilization	★★	★★	★★	★★★
Called and calling parties of calls in progress	★★★	★★★	★★	★★★
Whether IP calls are being rerouted to PSTN	★	★	★	★
IP call quality assessment	★★★			
QoS statistics on current, recent IP calls	★★★	★★★		★
Connectivity, diagnostic checks, tests	★★	★★★	★★★	★★★
Packet capture, VoIP call setup decode	★	★		★★

KEY: ★★★= Excellent; a competitive strength; one of the best in the area. ★★= Generally good in this area, but may require some time and effort. ★= Limited functionality and/or difficult or awkward to accomplish. (blank)= Not supported by the management wares tested. Ratings equally reflect (1) whether the task can be readily accomplished, and (2) the effectiveness of the user interface(s) in finding and understanding the information, including onscreen 'help.'

Monitoring Manager that closely tracks only VoIP traffic.

Management interface: Vertical's was the most efficient and navigable, followed by Siemens. Alcatel had the most tedious and complex interfaces to use.

Comparing IP PBX management: **Configuration**

Task/criteria:	Alcatel	Avaya	Siemens	Vertical
Setup of management access, multiple accounts	★★	★★	★★★	★★★
SNMP support (traps, management access)	★★	★★★	★★★	★★
IP call routing, setup of system VoIP parameters	★★	★★	★★	★★★
T-1 setup, trunk administration	★	★	★★	★★
Security features, setup: authentication, encryption	★	★★★	★★	★
Per-user and bulk administration of user accounts	★★	★★	★★	★★★
Softphone deployment, administration	★	★★	★★	
Mobility of IP phone users: moves adds and changes	★★	★★★	★★	★★
Remote reboot of system, individual IP phones	★★	★★★	★★★	★★★
Setting QoS for VoIP traffic special handling	★	★★	★★	★★

Product particulars

Alcatel's OmniPCX Enterprise: It don't come easy

Alcatel's OmniPCX IP-PBX system and e-Reflexes 4035 IP Telephone

Managing Alcatel's IP PBX in most cases requires OmniVista 4760, Alcatel's modular management software package. The server portion, with integral Sybase SQL database, runs on a beefy Windows 2000 platform with a minimum 512M bytes of RAM and at least 1-GHz CPU.

Administrators access the server via a Java-based browser interface. Besides OmniVista, we also made heavy use of Telnet directly into the call server.

The OmniVista modules each present a different interface to the user. And while they all employ a Windows-type GUI a few of the key modules — such as the configuration module — are laid out strangely and are cluttered with unnecessary objects. The result is an interface that's difficult to navigate. This complexity was compounded because we could not get OmniVista's online Help working properly.

Another drawback is that softphone call control and management require a totally separate Windows-based server application, which is not even accessible via OmniVista.

On the bright side, we accomplished almost every task we attempted via one or the other management applications. However, completing many of the tasks, such as resetting IP phones or gateways, involves the cryptic Telnet command-line interface. Alcatel says it plans to move some of these features onto interactive Web pages in its next major system release, Version 5.1, scheduled for September.

A very impressive and valuable feature is that the OmniVista alarm module maintains a stateful watch over events in the log and applies some degree of event correlation. When a severe condition that resulted in an alarm message is resolved or rectified, the software automatically will clear the event.

A separate useful tool is the Alcatel VoIP Assessment Tool, which comprises a Windows application and software that loads on Alcatel IP phones. From the Windows station the user directs any two Alcatel IP hard phones to conduct a user defined VoIP test with each other. The results are sent back to the Windows console, which processes the data and presents accurate QoS measurements of packet loss, jitter and delay, and relative VoIP-quality assessments.

Alcatel turned in its best performance in real-time monitoring, in part because of the added management capabilities the VoIP Assessment Tool provided. Alcatel came in just behind Avaya in the area of alarms, events and traps. Many performance metrics are accessible for use in defining events and alarms, but actually setting thresholds and event notifications is a complex and tedious process.

The overall difficulty of managing the OmniVista is high. Expect several months of experience and training to achieve management proficiency.

Bottom line: Alcatel

Management tool kit: OmniVista 4760, with configuration, alarms, accounting/metering, performance, directory, topology, and monitoring modules. Telnet command line. Alcatel Voice Assessment Tool.

Price as tested: Pricing is based on number of administrator seats (up to 10), call servers (up to 100) and total stations. For the 250- to 1,500-station range, list price for the OmniVista package ranges from $18,000 to $40,000. The Alcatel VoIP Assessment Tool lists at $2,500.

Strengths:

- Event log automatically clears events when they are resolved.
- Can accurately measure and report full range of VoIP QoS parameters.
- Issues special call records for IP calls, which provide much useful IP-telephony data.

Shortcomings:

- Soft phones require a separate call-control and management software structure.
- Online Help was not available, and we couldn't get it working.
- Some of the key OmniVista interfaces are unnecessarily tedious.

Comparing IP PBX management: **Events, alarms, traps**

Task/criteria:	Alcatel	Avaya	Siemens	Vertical
To obtain a clear notification:				
If VoIP call volume exceeds a user-settable threshold	★	★		
If QoS conditions drop below acceptable, settable level(s)	★	★★★		
If VoIP call setup problems are detected	★★	★★		
If security events, such as failed logon attempts, occur		★★		★
Supports SNMP trap insurance	★★	★★★	★★	★★
Supports an event/alarm log:				
Showing most recent events first	★★★	★★★		★★★
Letting user modify event descriptions		★★		
Letting user drill down, obtain more onscreen info	★★	★★	★	★★
Letting user filter out events (by severity and date)	★★★	★★★	★	★

Managing Avaya Communication Manager: A little help from my friends

Avaya's S8300 Media Server / G700 Media Gateway with P333T-PWR switch

The cornerstone of Avaya IP-PBX management is the Windows-based, though command-line-like, interface called Avaya Site Administration (ASA), which is just one component of the management package Avaya sent for evaluation. We tested Avaya's Integrated Management, Enhanced-level package, the third-highest of four management-software bundles.

The package includes ASA, a Java-based Windows application, plus three other applications:

- Avaya Multi-Service Network Manager

(MSNM), a customized, SNMP element manager that runs on Win 2000 and handles trap logging and SNMP polling for real-time status monitoring.

- Voice Announcement Over LAN, a tool that lets you manipulate and import .WAV voice-response messages into the IP PBX.
- VoIP Monitoring Manager (VMON), a tool that does a splendid job of monitoring VoIP activity by collecting and analyzing real-time transport control protocol reports.

Avaya also threw in a third-party call-accounting package, called eCAS from Veramark.

Avaya delivered the best overall performance in the reporting category because of eCAS, combined with the reporting capabilities of ASA and the VMON. The same is true for alarms, events and traps. All the management pieces contributed to Avaya's top score in this category. One obvious drawback, though, is that you have to constantly shift back and forth between different interfaces.

At least half of our test criteria was accomplished via the ASA interface. Although Avaya is making ASA user-friendlier by adding more useful Java applets, selectable as icons on the main screen of the interface, it still is based on tons of cryptic commands and acronyms that are, by and large, not spelled out anywhere. The on-screen Help is only marginally useful. ASA users likely will keep and maintain a sizeable crib sheet of key commands.

The value of the VMON should not be understated. For keeping a close eye on VoIP activity and especially QoS performance, this application alone is worth the $5,000 tab for the whole management package. Coupled with the MSNM, Avaya's performance in real-time monitoring was on a par with Alcatel and Vertical.

We ran a late-beta version of new IP hardphone code, which supported VoIP encryption. This turned out to be very easy to administer (via ASA) and performed flawlessly. VoIP media encryption stands to be a major marketplace advantage for Avaya. No one else now offers it, or likely will anytime soon, on such a clean, well-integrated basis. The Avaya encryption does not add perceptibly to latency, although it does have a noticeable — but for the most part acceptable — effect on voice quality.

The overall difficulty of managing the Avaya IP PBX is medium, based on the ASA interface. It will take a skilled user a month or so to become proficient.

Comparing IP PBX management: Trend, activity reports

Task/criteria:	Alcatel	Avaya	Siemens	Vertical
Obtain a report showing VoIP call volume by hour	★	★★★	★★	
Obtain a report for VoIP calls that summarizes:				
Calling and called numbers	★★	★★★	★★★	
Vocoder/silence suppression usage	★★	★		
VoIP bandwidth consumption	★	★★		
Inbound vs. outbound calls	★	★★★	★★	
Whether IP calls are local, via IP trunk or PSTN trunk	★★	★★★	★	
VoIP call quality	★			
QoS conditions	★★	★★★		
Inclusion of relevant, useful IP call info in CDRs	★★	★		★★
Ability to readily export CDRs	★★	★★★	★	★★★

Bottom line: Avaya

Management tool kit: Integrated Management, Enhanced-level package, which consists of Avaya Site Administration, Avaya Multi-Service Network Manager, Voice Announcement Over LAN and VoIP Monitoring Manager. We also employed Java-based Web-browser access to the system call controller and a third-party call-accounting package, eCAS, from Veramark.

Price as tested: Integrated Management, Enhanced-level package, costs $5,000. Veramark's eCAS application lists for $2,275.

Strengths:

- Best overall performance for events, traps and alarms category.
- Best overall performance for trend, activity reports category.
- Very slick and well-managed implementation of VoIP encryption.

Shortcomings:

- ASA interface still largely based on cryptic acronyms and commands.
- Online Help is only moderately useful.

Managing Siemens' HiPath 3500: Take it to the limit

Siemens' HiPath 3500

HiPath Manager E is the Siemens' main IP PBX management software. This tool was augmented in our evaluation by the company's Manager I application that separately handles many of the IP-specific aspects of the system, and the Deployment Tool that discovers and status-checks IP hard phones.

These are all clean, clear and consistent Windows applications, with excellent, context-sensitive online Help. Manager E connects directly to the HiPath 3500 call controller and obtains updated system data via a manual database download.

We also tested Siemens' HiPath Fault Management tool, an SNMP-based application that collects all traps issued by the IP PBX. Siemens also submitted the Traffic Analyst tool with Impact CDR option, a third-party package for call-activity reporting from Impact Technologies.

Siemens' strongest showing clearly was in configuration. Siemens met or exceeded all the criteria and tasks in that category through its Manager E and Manager I interfaces, coupled with the ability to Web-browse directly into any Siemens IP hard phone and set or change various VoIP parameters. Of the systems tested, only Siemens supported this per-IP-phone Web-browser access.

These tools work together pretty well on a live, IP-oriented HiPath 3500 system as far as configuration, but they are fairly limited from most other perspectives. Siemens brought in an IP PBX configuration with two call controllers — essentially two discrete systems — for our simulated two-site topology.

Managing two discrete systems was disjointed and duplicative. Everything you did on one — defining numbering plan, call routing, IP-phone user templates — had to be redone for the second system. Siemens offers a high-level umbrella software package for managing multiple systems, the 5000 RSM, which synchronizes and consolidates certain management aspects. But with a starting price of $7,400 for a 5000 RSM that handles up to 15 call controllers, it is not economically viable for only two systems, and Siemens didn't include it as part of its management tool kit for this review.

The HiPath Fault Manager provides an auto-discovered topology map, somewhat akin to what HP's OpenView does, but Siemens' is not a full-function SNMP manager. There's no management information base browser for retrieving specific management values, for example. There's a clean event log, but there's no way for a user to set threshold values to control when events, in the form of SNMP traps, are issued. Overall, this tool is of limited practical use.

The third-party Traffic Analyst application works by manipulating the call detail records that the system sends it. However, there are not many useful IP-telephony-specific fields in the Siemens call-record format, so the reporting capabilities from an IP-telephony perspective are limited.

The relative difficulty of managing this IP PBX is medium. Expect proficiency within about a month.

Bottom line: Siemens

Management tool kit: HiPath Manager E, Manager I, Deployment Tool, HiPath Fault Manager and Traffic Analysis with CDR Option.

Price as tested: Initial cost of the Manager application is $400. The Manager I and Deployment Tool applications come free when the user acquires Manager E. The HiPath Fault Manager costs $1,600. Traffic Analyst with Impact CDR costs $1,900.

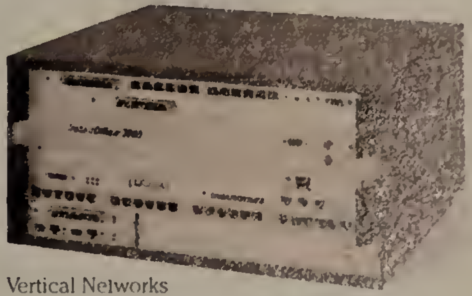
Strengths:

- Administrator can Web-browse into any IP hard phone.
- Best context-sensitive, on-screen Help of systems tested.
- Some very good diagnostic capabilities.

Shortcomings:

- Call Detail Records lack useful IP-telephony details.
- Fault Manager needs more SNMP NMS features.
- Some key VoIP parameters are set per phone, but should be centralized.

Managing Vertical's InstantOffice Model 3000: Take it easy



Vertical Networks Instant Office 3500

Vertical's InstantOffice is at the low-end of the IP PBX capacity scale. The Model 3000 is offered in configurations as small as eight phones. In most key regards, however, this system's management fares as well as, and in a few respects even better than, the IP PBX big boys.

InstantOffice has long supported IP trunking between remote systems, but only picked up IP hardphone station support in January. InstantOffice does not support a softphone, however.

All the system management happens via the free Remote Management Console (RMC) interface, making Vertical's the lightest and least-expensive management toolbox we tested.

This is a Web browser and Java-based interface installed directly into the Windows NT-based call controller that drives the system.

Vertical also offers a high-end, umbrella management package for multi-system management, called Multi-Site Manager for about $500 per system managed. Its functionality is limited, and it does not replace the RMC, but rather provides a high-level overview of multiple systems. It was not included in this test because Vertical says it generally is employed if you're managing 25 or more systems.

Because special applications are not needed on your management console/laptop, access is quick and straightforward. All management actions are accomplished via about three dozen icons that are arranged on the main screen in four groups: General Admin, PBX and Application Admin, Data Admin, and Trunk Admin. It is easier and faster to find what you're looking for via this interface than any of the other systems tested.

The context-sensitive, on-screen help accompanying the RMC interface is very good, and is very close to Siemens' as far as usefulness, information content and succinctness.

Vertical offers the most efficient screen for setting QoS values in VoIP packets, letting TOS or Diff-Serv values be entered in hex, decimal or binary, and automatically translating between these. The system does not now support Layer 2 virtual LAN (VLAN) tags as a QoS mechanism, however.

Vertical's tools do an exceptional job in real-time monitoring, but there are few integral features for summarizing data in reports on a long-term basis. However, Vertical's CDRs contain many IP-telephony details, including such QoS metrics as jitter and packet loss.

And exporting these CDR files is very simple and straightforward. With some work, users can readily produce long-term and trend reports by processing exported CDR files in a third-party application such as Microsoft Excel.

Relative difficulty of managing this IP-PBX is low. Expect proficiency within about two weeks.

Bottom line: Vertical

Management tool kit: Remote Management Console.

Price as tested: The RMC browser- and Java-based interface is free with each system.

Strengths:

- Rich set of VoIP configuration options, especially for WAN bandwidth optimization.
- Very good, context-sensitive, on-screen Help.
- Useful IP-telephony details contained in CDRs.
- Excellent real-time monitoring and diagnostic capabilities.

Shortcomings:

- VLAN tagging not supported for VoIP QoS.
- IP phones not reporting bandwidth statistics.
- No softphone support.

Mier is president of MierLabs, a network research and product test center in Hightstown, N.J., which focuses on IP telephony and its management. He can be reached at emier@mierlabs.com.

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Getting the A players

Borrow a few plays from this game book for recruiting and retaining winners for your IT team.

BY LINDA PITTENGER

It was only a few years ago that most employers filled positions indiscriminately, often with high-priced contractors, consultants or permanent employees who weren't necessarily the most qualified candidates. However, inhospitable economic conditions over the past two years have forced many to embrace a new mantra — quality over quantity.

Most companies no longer have the resources and flexibility to hire people who are not an optimal fit for the job. You must carefully determine which IT people and positions are business-critical, and the retention strategies needed to keep the best and brightest onboard. Now more than ever, it's critical for IT leaders to develop and implement a comprehensive demographic-based recruitment and retention strategy to offer a compelling value proposition to the right employees in the most cost-effective manner.

The drivers of recruitment are different from the drivers of retention. To that end, pay will get you in the game but will not sustain you. According to People3's 2003 IT Market Compensation Study, compensation is important but ranks behind challenging work environment, company reputation and benefit programs as the most effective attribute in attracting IT professionals.

To create a compelling offer, you need to provide a satisfactory and rewarding work experience through competitive compensation, challenging work, a variety of learning and development opportunities, work/life balance and individualized benefits.

While turnover is less significant today because of the surplus of IT talent in the job market, turnover still should be of concern because of its associated costs. Turnover typically costs from 100% to 250% of the base salary of a departing employee. Some of the costs are difficult to measure, but those that can be quantified include recruiter fees, cost of a temporary contractor, cost of manager's interview time and administration, salary differential, sign-on bonus, employee training, productivity loss and relocation expenses. By gaining a clear picture of what it costs to lose your A players, you can begin to justify enacting retention initiatives that serve to mitigate these costs, and improve the performance and morale of the IT organization.

Use reward as a tool

In these tight times, many IT executives say they don't have the budget to give their A players the financial rewards they deserve. To achieve the reward payout appropriate to an employee's value to your organization, you don't need to budget for more payroll dollars. Instead, you should distribute money differently.

Divide employees into three performance tiers. The top tier (superior performers) should receive significant payout. The middle tier (average performers) should receive awards aligned with the cost-of-living index. The third tier (those who don't perform) should receive no increase. If your reward program doesn't differentiate for superior performance, it will only promote mediocrity. Pay strategies designed to recognize and reward A players have been shown to significantly reduce turnover of employees key to company success.

Even in today's tough economy, rewarding key talent and hot skills at the competitive market rate is still a critical element of an effective recruitment and retention strategy. Organizations should consistently track and benchmark their compensation strategies against peer groups in the market. By performing a competitive analysis, you'll have a better chance of retaining your A players when business and market conditions improve.

Long-term incentive programs, if designed and managed properly, also are powerful recruitment/retention vehicles to link reward to a company's long-term success. People3 research indicates that nonqualified stock options, deferred cash bonuses and incentive stock options are the most effective programs offered to IT employees. Although current economic conditions have lowered the value of stock-based rewards, it's still considered an effective reward and retention tool when managed appropriately and communicated with a perspective of long-term growth.

More than money

Indirect financial rewards, non-monetary rewards and career development activities often are just as important and valuable to employees as direct financial rewards. The best benefit and recognition programs offer a variety of options to match an individual employee's need.

Popular work/life programs reported in People3's study include casual work environment, education/certification reimbursement, attendance at conferences and seminars, flexible work arrangements and company-matched 401(k) plans. Managers should be trained on how to effectively and consistently recognize employees and should be given a discretionary budget for "spot" awards to allow for immediate recognition of their direct reports' achievements.

Compensation and benefits might get desired employees in the door, but culture has a significant impact on retaining them. Having a culture that supports a creative learning and development work environment is key to keeping IT employees.

Changing a culture doesn't just happen, though. It takes dedication and consistent "walking the walk" to build, sustain and maintain a strong corporate culture. IT leaders must determine what type of culture is needed to drive the desired business results and clearly communicate that message to staff.

The trend is to look at employees as a whole, not just in the context of work. This means focusing on work/life balance; providing a flexible, comfortable and open work environment; and establishing feelings of loyalty and organizational support. Leaders and managers must be committed and supportive to ensure the success (and not abuse) of a flexible and open work environment. Understand what motivates your employees and develop programs that drive the desired behaviors.

In more difficult economic times, some companies tend to ignore the people issues because there are plenty of people available. They begin to view people as disposable.

The best organizations don't do this. These businesses will be able to keep their best performers when the economy turns around, while firms that ignore their people issues will experience the greatest turnover and lower productivity and employee satisfaction.

CLAY SISK

Pittenger is president & CEO of People3, a Gartner Company specializing in human capital management strategies for IT organizations. She can be contacted at people3@gartner.com.

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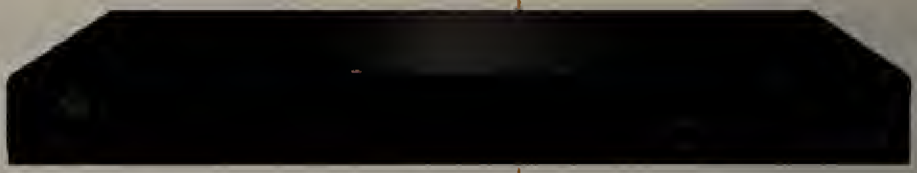

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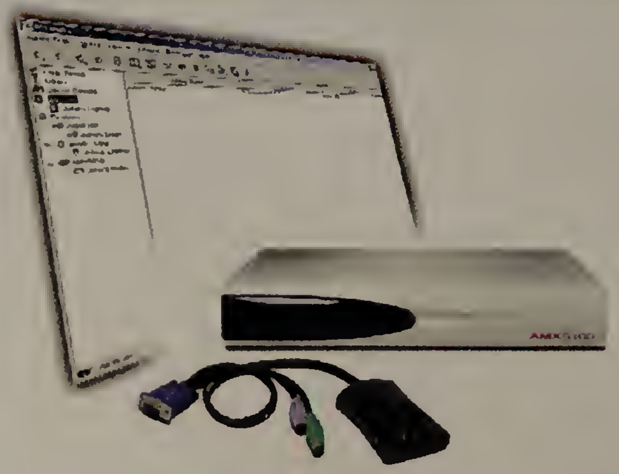

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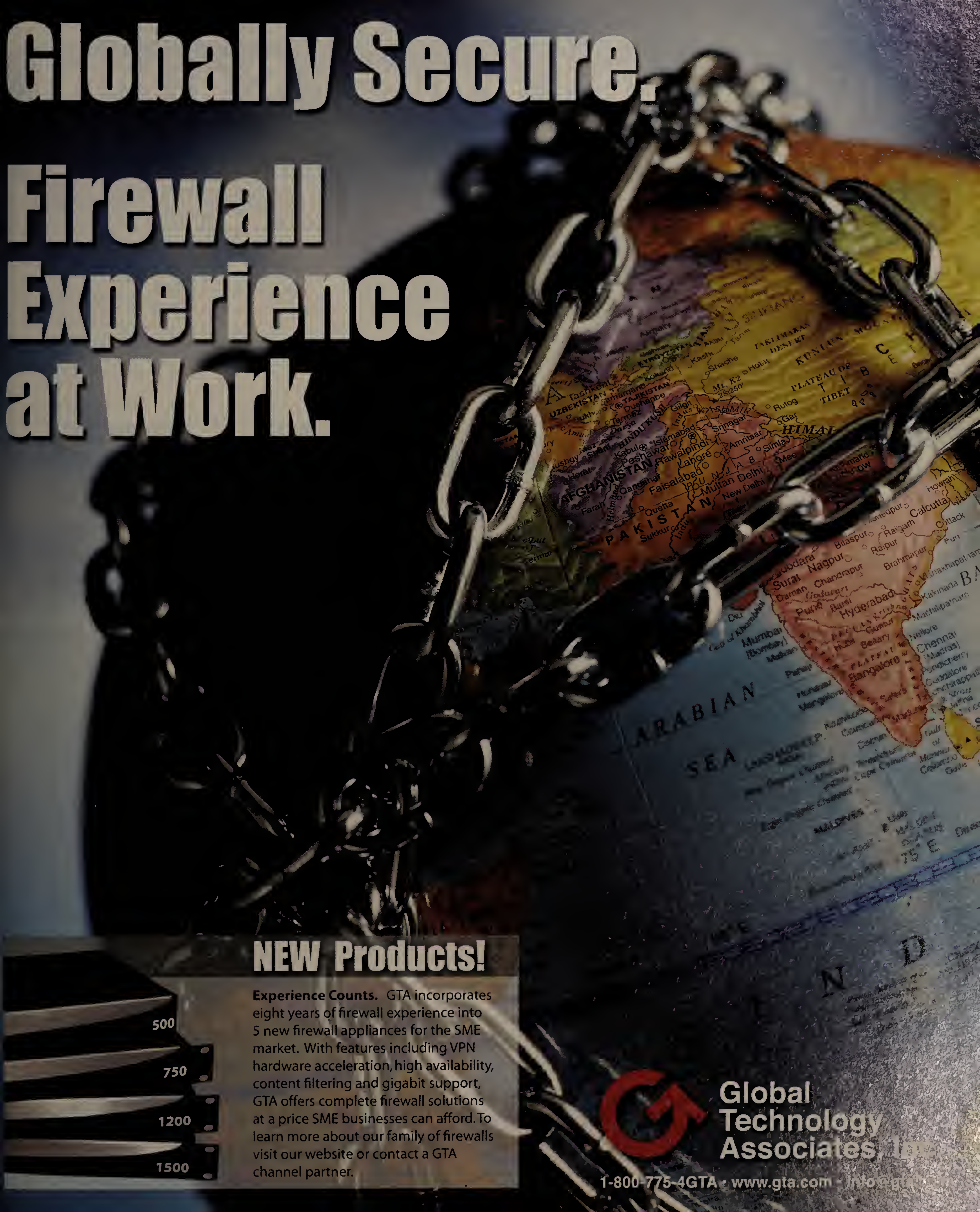

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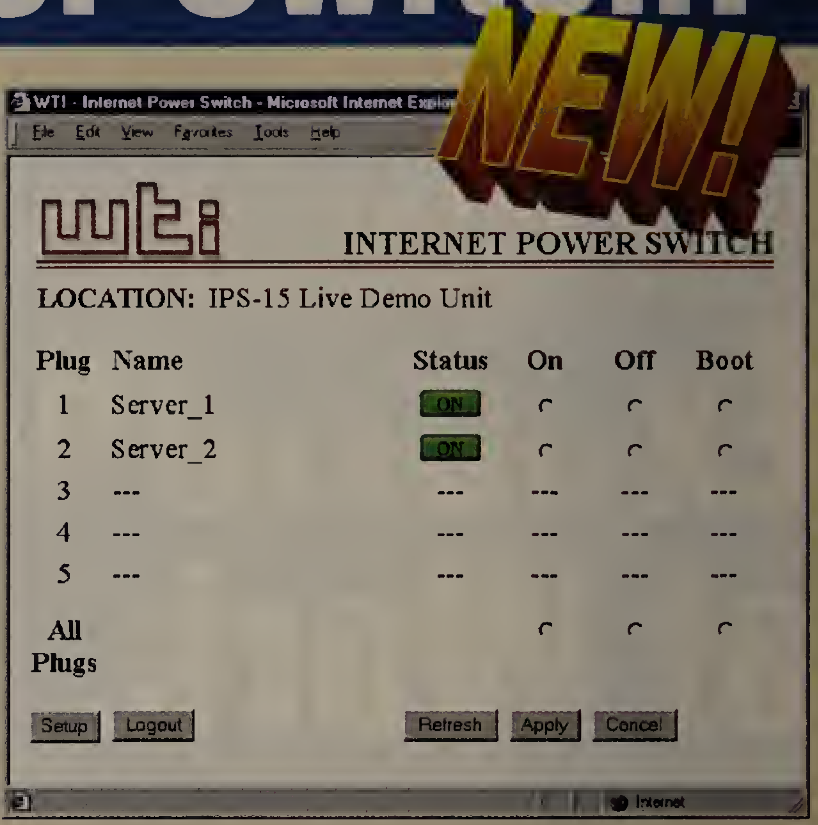
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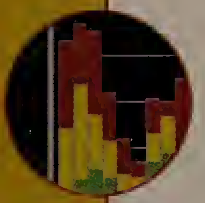

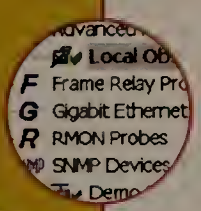

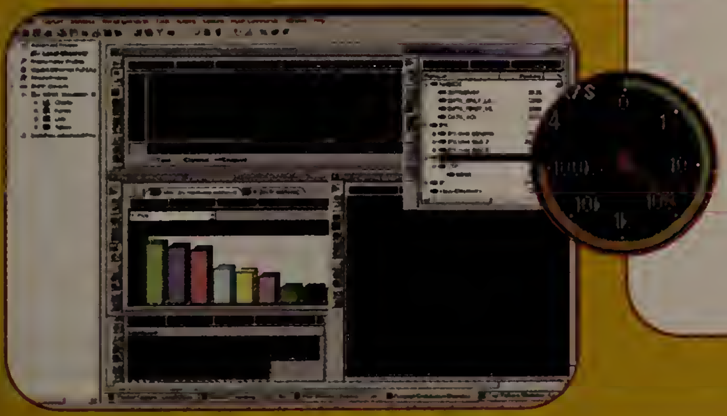

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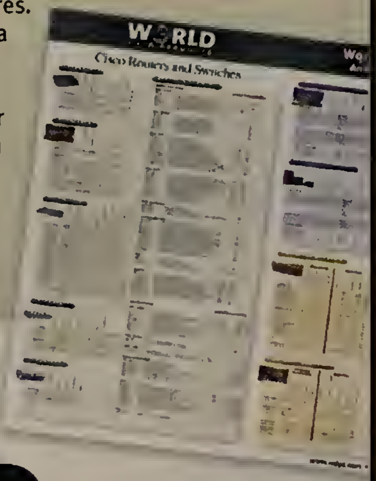

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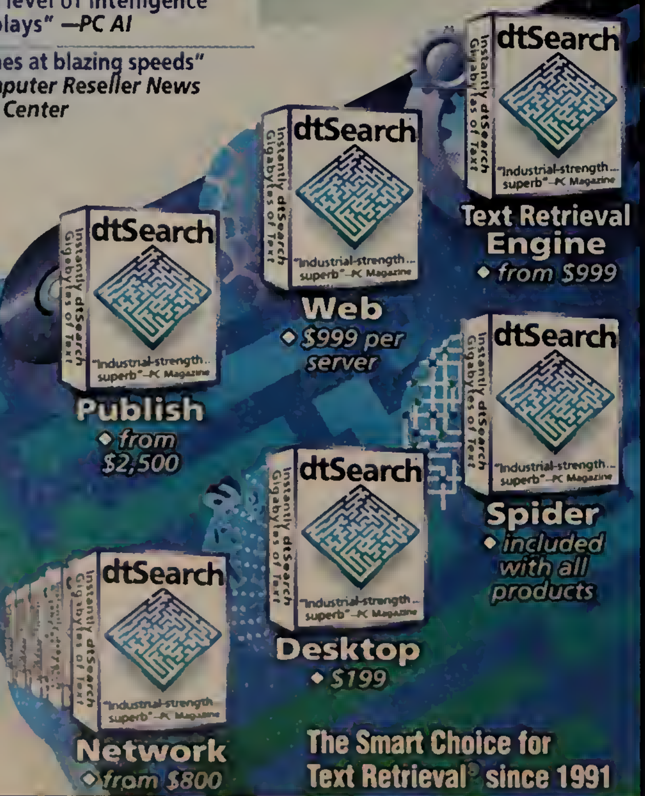

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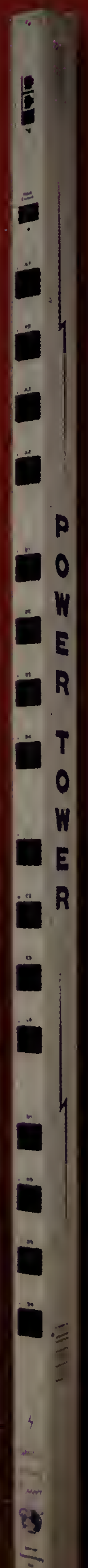

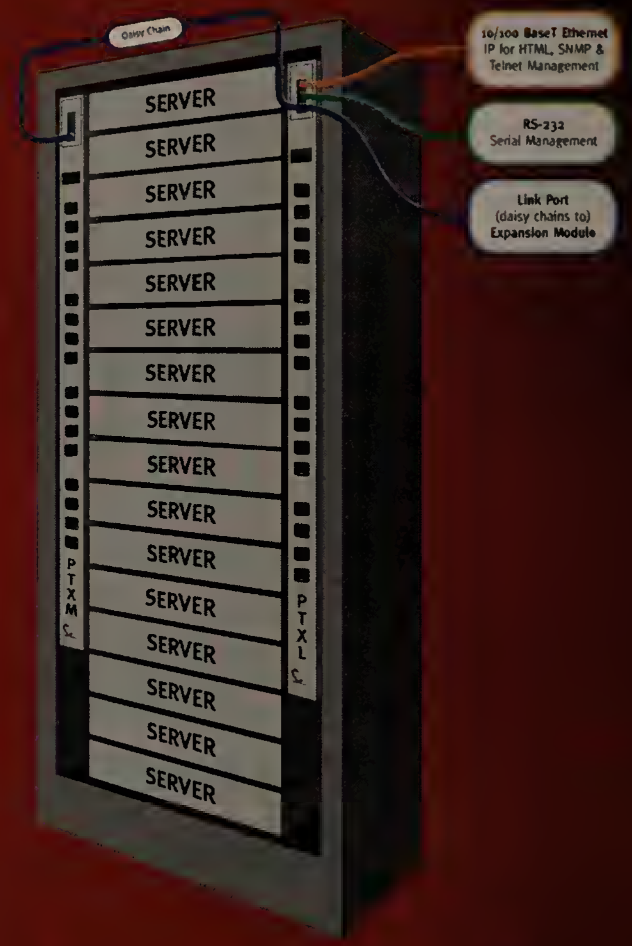

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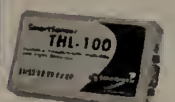

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VegaStream, Inc., located in Boca Raton is seeking F/T expd. Manager of Product Support to research, design, and developing of computer software systems, in conjunction with hardware product development. Analyze software requirements to determine feasibility of design within time and cost constraints. Consult with hardware engineers and other engineering staff to evaluate interface between hardware and software, and operational and performance requirements of overall system. Formulate and design software system, using scientific analysis and mathematical models to predict and measure outcome and consequences of design. Bachelor's degree in Computer Science, competitive salary. Fax resume to H.R. (561) 995-6027.

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Prog Analysts to analyze, design, code and maintain web/client server applications using Java, C, C++, CORBA, J2EE, HTML, Servlets, XML, Weblogic Server, IIS, Oracle, MS Access etc under Windows, Sun Solaris OS; perform automation of functional/regression testing with WinRunner, eTester and Astra Quick Test, provide on site maintenance support such as debugging, modifications, fine tuning & code optimization. Require: BS or foreign equivalent in CS/ Engg(any branch) with 2 yrs exp in IT. High salary, F/T, Travel involved. Resume to: HR, Semafor Technologies, Inc, 3300 Holcomb Bridge Road, Suite 212, Norcross, GA 30092.

SENIOR (UNIX) SYSTEMS ENGINEER

A global consumer packaged goods company based in the Greater Boston area, engaged in the manufacture, distribution and marketing of a range of personal care products, has an immediate need for a highly skilled Senior (UNIX) Systems Engineer. This senior-level position involves the analysis and proposal of system hardware, software, and system solutions for centralized HP-UX, AIX and NT enterprise-class computing platforms, running SAP applications in an Oracle environment. Minimum educational requirements include an Associates degree (or equivalent) in Computer Science, Math, MIS, Electrical/ Electronic Engineering, or similarly relevant field. Minimum experience required is at least seven (7) years specifying HP-UX hardware / software system solutions, at least two (2) years of which specifically was for SAP R/3 in an Oracle 7.x and 8.x environment. Specific requirements include the demonstrated ability to implement complex external disk subsystem integration of EMC and HDS storage systems with HP-UX and AIX operating systems. Also required is the demonstrated ability to specify, install and configure HP 9000 series N4000 and newer Enterprise Servers. Additionally required is the demonstrated ability to install, configure and test HP MC/ServiceGuard clustering and EMC SRDF software. Further required is the demonstrated ability to write PERL scripts and convert Shell scripts to PERL. Finally required is the demonstrated ability to implement enterprise backup solutions using HP Omni-Back integration with SAP br-tools. Base salary is $93,000 per year. Benefits include ten days paid vacation, contributory medical, dental, disability, life insurance, and other industry-competitive benefits. Oualified applicants respond with two (2) copies of resume only to: Case # 2002-02333, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114. An EOE/ MFHV.

Principal Software Engineer responsible for project management of new systems architecture projects. Will oversee & participate in design, development, testing & implementation of new software; perform client/server application design & development; review technical requirement specifications for software code development; and solve technical problems related to the software development as needed Will apply knowledge of C/C++, HTML, Visual Basic, UNIX & various database applications. Requires Bachelor's or equiv in CSc., Engineering, Math or Physics, plus 5 yrs experience in Job Offered OR 5 years' developing client/server applications. Alternatively, will accept Master's or equiv in C.Sc., Eng, Math or Physics, plus 3 yrs in Job Offered OR 3 yrs developing client/server applications. Candidate must also possess demonstrated expertise in design & development of COM, COM+, business objects & web-based user interfaces; dem expertise in design & development of multi-threaded user interface interactive systems; and dem expertise in design & development of remote access interactive tool w/in a multi-hardware/software/network infrastructure. Sal: $90,500/yr M-F, 9AM-5PM. Send 2 resumes to Case # 2002-01701, Labor Exchange Office, 19 Staniford St., 1" fl., Boston, MA 02114 EOE. Applicants must be US workers eligible to accept full-time employment in U.S.

Manager, Software Development. Manage the development of software to combine physiological and operational requirements in real world operations. Design customized scheduling software for North American railroad operations. Supervise members of the software development team and contract employees. Draft marketing products for company's software products. Manage creation of user manuals and training material for software products. Provide training to clients on software products. Oversee strategy for system development. Sales presentations for software products to industry clients. Supervise and manage software engineers and other professionals engaged in the following job duties: Digital Signal Processing of physiological data (e.g.: EEG, EOG, ECG, video data); Feature extraction (understanding of the physiological underlying processes and the mathematical implications); Design and training of Artificial Neural Networks; Application of Pattern Recognition algorithms for classification of physiological data; Application of pattern recognition methods for predicting microsleeps; Development of software for modeling physiological processes (alertness model); Integration and modifying hardware for detecting driver fatigue; Testing hardware for detecting driver fatigue; Designing and programming of software to analyze data from tested driver fatigue detection hardware; Realization of programming tasks in MATLAB, C, Delphi, Assembler and Visual Basic. Requirements: Master's degree or equivalent in Computer Science, Engineering or related field plus 2 years experience in job offered or 2 years experience as a Software Engineer in the field of Artificial Neural Network. Must have at least 2 years concurrent experience with the design, training, and application of Artificial Neural Networks in industrial context, as well as MATLAB, C, Visual Basic, Assembler and Delphi. Salary: $99,500/yr. for 5 day, 40 hour work week, 9:00 a.m.-5:00 p.m. Submit two (2) copies of resume to Case #200201962, Labor Exchange Office, 19 Staniford St., 1st Floor, Boston, MA 02114.

Senior Software Engineer: Specify, design, develop and support various aspects of the products. Work within teams to define the next generation architecture of the company's products that include agents, networking, management tools and policy server. Work closely with members of the Product Management, Quality Assurance, Release Engineering, Documentation and Customer Support teams to ensure proper product development and support. Follow rigorous software engineering standards including development of product requirements, functional and design specifications and adhere to coding standards. Work with partners and industry groups to create and promote standards in security and e-commerce. Requirements include a Bachelor's degree or equivalent in Computer Science or related field and five years of experience in job offered or related field of software engineering. Applicants must have unrestricted authorization to work in the United States. Salary $87,000/ year. 40 hours/wk. Respond with two copies of resume to Case #200202112, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

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HCL TECHNOLOGIES AMERICA, INC.

HCL Technologies America, Inc. and its affiliate companies, like HCL Technologies (Illinois) Inc., and HCL Technologies (Mass.) Inc., have multiple openings at its offices in Sunnyvale, CA; Stamford CT; Plano TX; Florham NJ, Irvine CA, Vienna, VA, Boston, MA, Chicago, IL, Detroit, MI as well as project sites throughout the United States for the following positions:

Software Engineers
Programmer Analysts
Systems Analysts
Database Administrators
Hardware Engineers
Budget Analysts
Systems/Network Administrators
Project Managers
Account Managers/Sales Managers/Business Managers
Sales Engineers
Industrial Engineers
Market Research Analysts
Management Analysts
Human Resource Representative
Accountants

Salary will be commensurate with education and experience. All positions may involve travel or relocating to various client sites through out the US.

For consideration please send your resume to:

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Sunnyvale, CA 94085
Email: cwjobs@hcltech.com

Please indicate the location and the position you are applying for.

www.hcltechnologies.com

SAP Information Technology Consultant - Initiate, plan & evaluate ways to improve global supply chain, scheduling & demand planning operations using SAP platform (R/3, APO, ABAP. BAPI). Perform cost-benefit analysis for different deployment strategies. Design integration model w/focus on Schedule-X interface w/ SAP R/3 Enterprise Resource Planning & APO. Develop Business Scenario flow documents & implementation analysis report. Validate global Demand Planning design in line w/US requirements. Design & configure Supply Network Planning. Must be willing to travel to project sites throughout US & abroad approx. 25-30% of time. Must have Bachelor's degree or foreign equiv. in Comp Sci, Engineering, Business or related field + 3 yrs exp in job offered or cross-modular SAP Programmer/Analyst. 8:30am-5pm, M-F. OT as needed. $102,549/yr Reply to Job Order #WEB-337067, Manager, Beaver County Team PA CareerLink, 2103 Ninth Ave., Beaver Falls, PA 15010-3957.

Quality Assurance Engineer needed to initiate, develop, implement structured SOA testing environments, processes, manuals, and automated projects, using advanced knowledge of computer science and engineering. Must have Master's Degree in Engineering or Computer Science plus work experience with the following computer languages:C, C++. Java, SOL, PL/SOL and testing tools WinRunner, LoadRunner Silk, and Rational Robot. Send resume to: Links Technology Solutions, Inc., 444 East State Parkway, # 219, Schaumburg, IL 60173.

Senior Oracle Database Developers / Administrators (Pharmaceutical)

A global biotechnology company locally based in the Greater Boston area, is engaged in the research, development, manufacture, and marketing of prescription drugs, has an immediate need for two experienced, highly-skilled Senior Oracle Database Developers / Administrators (Pharmaceutical). The responsibilities of these senior level positions involve the design, setup and maintenance of clinical trial databases in Oracle, in accordance with FDA regulatory standards. Parallel responsibilities include computer system validation and database administration tasks. Minimum education required is a Bachelor's-level degree in MIS, CS, Math, Business, or a field of engineering Minimum experience required is at least five (5) years involving Oracle database programming and administration, at least two (2) years of which specifically were in the pharmaceutical / biotechnology industry using PL/SQL. Oracle Forms and Reports. Specifically required is the demonstrated ability to design, set-up, implement and maintain clinical trial databases within the federally-mandated guidelines set forth in FDA's "Good Clinical Practices" ("GCP"s), and FDA's 21CFR11 re electronic signatures. Also required is the demonstrated ability to annotate a Case Report Form and program edit checks as indicated in a data validation plan. Additionally required is the demonstrated ability to perform validation of commercial off-the-shelf software and internally developed applications and tools, adhering to FDA regulatory standards on computerized systems Finally required is the demonstrated ability administering databases creating users and roles, and performance tuning Base salary is $ 80,000 Benefits include fifteen (15) days paid vacation, medical, dental, disability, life insurances, and other industry-competitive benefits Oualified applicants respond with two (2) copies of resume only to: Case # 200201818, Labor Exchange Office, 19 Staniford Street, 1st Floor Boston, MA 02114 An EOE/MFHV

ADVENT GLOBAL SOLUTIONS, INC.

Advent Global Solutions one of the fastest growing IT service companies has the following positions open in two locations:

SOFTWARE ENGINEERS to research, design, develop computer software systems and lead new product development projects to timely completion. Ability to evaluate and design SAP software is required. Needs a Masters in CS/MIS or any related degree combined with 1 + years experience or Bachelors with 5 years experience in designing and developing computer software systems.

SYSTEMS ANALYSTS: to analyze, design and develop operational procedures to automate processing and to develop new systems to improve production. Knowledge of SAP, Oracle, and other business related software is essential. Needs Bachelors in Engineering/CS or in any related field combined with 5 years relevant experience in designing and developing computer software systems

Please send resumes to the respective addresses:

3419 N. Kennicott Avenue, Suite C,
Arlington Heights, IL 60004

12777 Jones Road, Suite # 445,
Houston, Texas 77070.

MIS Administrator - Install, monitor & maintain network system software incl. operating system, data base & data comm. control & other utility prog; prov. tech. assist to users in operation & maint. of PCs; prov. analysis & recommendations for network/systems/infrastructure improv.; formulate & track budget expenses to ensure complience w/depart. constraints; coord. Syst. Integration, repair & installations w/internal resources & outside vendors; performs Network LAN mngt, troubleshoot, & setup network equip. (hubs, routers, brides & switches); write prog. docs. & users procedures & instructions; docs. & manages LAN/WAN architecture & network policies & comm. network; mngt TCP/IP, Internet access; prov expertise in develop. security & firewall protection for the comp. network; configure, install, debug, troubleshoot & maintain performance of eng. computer syst incl. both hardware/software applications; maintain hardware/software invent.; maintain, manage & expand company's phone syst. incl. Pbx, switch mangt console & voicemeil; works w/& install Autocad softw. BS in Electrical, Electronic or Systems Eng. & 1 yr exp in job offered 40 hrs per wk M-F 9AM-6PM. Fax resume to RJ Behar & Company, Inc. Attn: Rober Behar. (954) 680-7781.

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Silicon Laboratories Inc. is hiring for the following positions:

Systems Design Engr (Senior Level): Research, design & develop system level algorithms for data conversion & communication eqpt mixed signal IC applications; apply computer & electrical eng'g analysis to set operational specs & then formulate & analyze algorithms req'ts. Min req't: Ph.D. degree in Electrical & Computer Eng'g. Job site: Austin, TX or Broomfield, CO.

Product Marketing Engr: Responsible for product strategy, definition, pricing & promotion on a family of mixed signal ICs for wireless products; provide customer support & interact with other companies' design, manufacturing and finance groups. Min req't: BSEE or BSCE plus 2 yrs. exp.

Jobsite: Austin, TX. Please send ad & resume to HR Dept, Silicon Laboratories Inc., 4635 Boston Lane, Austin, TX 78735.

Programmer Analyst (multiple openings) - Design, develop, test and implement computer applications using one (1) or more of the following: RPG/400, AS/400, ILE/RPG, CL/400, SQL/400, Visual Basic and/or C++. Req's. Bach's in CS, Systems Analysis, CIS, MIS, Computer Engg., Computer Sci and Engg., Electrical Engg., Electronic Engg. or Math or its equiv. in edu. and exp. plus 2 yrs exp. in job offered or 2 yrs exp. in a related occup. as a Programmer, Programmer Analyst, Systems Analyst, Senior Systems Analyst, Software Engineer or Consultant. Will accept 3 yrs of college edu. plus 3 yrs exp. in job offered or in a related occup. in lieu of the req'd edu. and exp. Will also accept any equally suitable combination of edu., training and/or exp. which would qualify an applicant to perform the duties of job offered. $83,387.20/yr., 40 hrs/wk., 8a-5p, M-F. Submit resume to MDCD/ESA, P.O. Box 11170, Detroit, MI 48211-1170. Ref. No. 210492. Employer Paid Ad.

VICE PRESIDENT OF IT OPERATIONS - Los Angeles. Direct management & strategic development of IT operations of worldwide publisher of interactive entertainment & productivity software. Bachelor's in computer sci., Computer studies information systems or engineering + 6 yrs experience in job offered or 6 yrs experience managing IT operations, including managerial responsibility for design & administration of enterprise-wide info systems. Must have knowledge of network infrastructure, directory services & digital asset mgt systems. Must be fluent in spoken & written French, including IT terminology. Send resume & letter to HR VPIT, Vivendi Universal Games, Inc., 6080 Center Dr., Los Angeles, CA 90045.

Senior Analyst (Oracle Applications and Databases) needed in the analysis, architecture, administration, maintenance, design, and implementation of Oracle Applications and Databases, using advanced knowledge of computer science and engineering as well as particular computer utilities. Bachelor's Degree in Computer Science or Computer Science Engineering required plus prior work experience with Oracle Applications and Databases. Positions in California and Illinois available. Send resume to Mr Brian Burke, Links Technology Solutions, Inc., 444 East State Parkway Suite 219, Schaumburg, IL 60173

Software Engineer

(Requires Masters degree and two years experience.) - Job entails and requires experience in design, development and implementation of enterprise level applications using C, VC++, .NET and Oracle; design and development ex-perience must include Unix, NT and IRIX platforms. Attractive compensation package. Send resumes to Calvin Whittington, The Library Corporation, Research Park, Inwood, WV 25428.

Systems Admin's. to install, maintain, support/administer operating systems like Unix, Linux, AIX, Solaris, Web Servers like Apache, IIS and application servers like Weblogic, Websphere; responsible for system security, UNIX Kernel and Oracle database tuning&network performance tuning; configure storage devices using Veritas Volume Manager. Require: BS or foreign equiv. in CS/Engg. (any branch) & 2 yrs of exp. in IT. Travel required. High Salary. F/T. Resume to: HR, Fourth Technologies, Inc., 585 Tollgate Road Suite I, Elgin, IL 60123.

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with Oracle and UNIX Scripting also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Edify Technologies, Inc. needs Programmer Analysts: Bachelor's degree in Computer or related field with 2 years experience in C#, Unix Internals, Ant, C/C++, Bugzilla, WebLogic, Tornado, ClearCase/Quest/Make, VxWorks, Webservices. We accept foreign education degree or the degree equivalent in education and experience. Send your resume with covering letter to: Edify Tech. Inc. 1318 E Algonquin Road, 2H, Schaumburg, IL 60173. E-mail: resumes@edifytech.com.

Systems Analyst - Oracle

3-5 years experience supporting payroll and HR systems. Significant experience with Oracle databases and applications. Knowledge of database management systems. Project management experience. Strong Unix skills along with query languages such as PL/SOL and SQL. Knowledge and understanding of 3rd party report writers including Noetix and Crystal Reports. Please send resume to: Embry-Riddle Aeronautical University, HR Dept., 600 S. Clyde Morris Blvd., Daytona Beach, FL 32114.

SOFTWARE ENG Design & implement complex operating software applications. B.S. Comp Science or equiv. & 2 years programming experience, must be proficient in PeopleSoft & related programs. Apply to: Harland Co., Attn: Caryl James, 2939 Miller Road Atlanta, Ga 30035.

SOFTWARE ENGINEER: Experience in full product life cycle & banking securities applications. Familiarity with VB3, PL/SQL, UNIX, ASP, Oracle, Foxpro2.5. Mail resume to: Corporate Software Solutions, Inc., 4251 Route 9 North Bldg. A #C, Freehold, NJ 07728.

Prog/Analysts to analyze, develop, maintain software appls using Oracle Applications, Oracle, PL/SQL, Dev 2000, etc under Windows/UNIX OS; conduct functional testing/debugging; perform data conversions, customize Forms/Reports using Oracle Applications standards; document, maintain & update development process. Require: BS or foreign equiv. in CS/Engg. (any branch) or related field & 2yrs of exp. in IT. Travelinvolved. F/T position. Comp. Salary. Respond to: HR, Bahwan Cybertek Technologies, Inc., 209 West Central Street, Ste 312, Natick, MA 01760.

Technical Support Manager for distributor and value added reseller of internetworking solutions located in Miami, Florida. Bachelor Degree in Electronics or System Engineering or foreign equivalent and 2 yrs. exp. in job offered or telecommunications related area. Send resume to CLAdirect, Inc.; attn: HR Dept., 8600 N.W. 17th Street, Suite 140, Miami, FL 33126.

Software Engineers needed at client sites to dsgn, dvlp, integrate & support computing & switching systems for computer-telephony, telecom, n/working & related fields using Dialogic DNA voice boards, CT-Connect, CTI-IVR, ACD, PLC-Programming (Ladder Logic) & SCADA systems, PLC-PC n/work, Voice-Over-Packet solutions, TI-54x series of DSPs, RM7000 series of processors, PMC-Sierra Framer & FXS card. Send resume to: Hireme, Global Consultants, 25 Airport Rd. Morristown, NJ 07960.

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Management

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about 22 Unix and Windows servers in its data center.

The debate over whether to manage networks via software or hardware — or some combination of the two — is an increasingly common one as IT budgets remain tight and a new breed of management appliances hits the market from a mix of newcomers and more established vendors such as Gold Wire, Oculan and SilverBack.

The products come with a host of management capabilities, including network discovery, fault management, security management and performance monitoring. While management software that runs on general-purpose hardware is tried-and-true, if often expensive and complicated, management appliances have the advantages of simplicity and aggressive pricing.

"Pricing is key to the management appliance model," says Glenn O'Donnell, research director at Meta Group. "Dedicated devices must be priced low enough to offer ROI within six months."

Appliances are in the $1,000 to $30,000 range, whereas management software installations can run into hundreds of thousands or even millions of dollars.

But lower prices often come fewer features and less scalability (Gold Wire's Formulator configuration management box, for example, maxes out at about 3,000 managed nodes). For this reason, appliances are seen by many as the purview of small to midsize companies with less-demanding IT needs.

Appliance vendors configure the processing power in their boxes to work specifically with their management software. They claim this helps avoid the sort of CPU meltdown general-purpose servers are vulnerable to when trying to juggle events, alerts and non-management applications.

"The big advantage of the packaged system is you get a bounded, plug-and-play solution. It removes the necessity of the staff having to do all of the run-of-the-mill management tasks," says Rich Ptak, principal of consulting firm Ptak Associates.

Still, appliances make up a fairly small chunk of the overall management product market — 10%, according to consulting firm Enterprise Management Associates (EMA). This number includes earlier management appliances, such as packet shapers, that tend to focus on one task.

"Software can be more flexible and easier to integrate with other applications, and frankly, there are fewer ways to slice and dice scalability with an appliance," says Dennis Drogseth, an EMA vice president.

Chris Holbert, director of IT at North American Scientific in Chatsworth, Calif., uses Computer Associates' Unicenter software to manage his LAN, WAN and remote offices. Using software for management gives him flexibility, scalability and integration features that he says he's doubtful an appliance could match. He also says he feels more in control of his management strategy by deploying software that can be tweaked and upgraded on the fly.

Hardware vs. software

New management appliances give companies an alternative to management software.

Why an appliance?

Price: These devices are priced starting at around $1,000, whereas software point products start at about $10,000, and management platforms can get into the millions of dollars when professional services costs are factored in.

Simplicity: The self-contained boxes require little IT oversight, making them ideal for companies or sites with minimal IT personnel.

Performance: Appliance vendors pre-package their management software on high-availability hardware optimized to run the software.

Why software?

Scalability: One platform can be extended to support thousands of endpoints through the use of agents and third-party programs.

Flexibility: Software programs are extensible and work together with other vendors' products to support a range of applications from fault management to security monitoring.

Reliability: Whereas appliances are being sold by newcomers such as Gold Wire and Vieo, management software comes from established companies such as Computer Associates, HP and IBM.

"An appliance is a black box. You have to depend on the vendor to upgrade and service the box, and while it may be easier to manage because it only does certain things, it's an immobile, permanent fixture," he says.

Jim Sherer disagrees. It takes too much effort to get software working, says Sherer, director of ASP Operations at ADP Dealer Services in Hoffman Estates, Ill. He prefers appliances.

"Putting an appliance in is 10 times easier than having to come up with a solution to integrate," he says.

Sherer recently began working with Gold Wire's Formulator, a configuration and change management appliance. The start-up embedded its proprietary software in a high-availability box and built in integration with popular software and equipment to ensure its product will work in a heterogeneous network.

Sherer uses the tool to address a specific need.

"I can put this appliance anywhere in the network, and its purpose is to manage security," he adds.

Ross McKenzie is considering both management software and appliances to augment the network and system management strategy at Johns Hopkins Bloomberg School of Public Health, in Baltimore, Md. With freeware such as Multi Router Traffic Grapher and proprietary management applications such as CiscoWorks in place, McKenzie's staff is looking to branch out and implement a comprehensive framework to manage the network that supports 5,000 end users.

Kevin Stone, senior network administrator at the school, has his doubts about the price and people skills required with software, and says he has equal doubts about the performance and scalability of hardware.

"Software would require we dedicate a person to understand a complex package, and we usually can't dedicate people to know one product inside and out. You get issues with employee turnover," he says. "An appliance is simpler to set up, but you may need two or three to do the work of one software application, and then you can't customize it too much anyway."

The team at Johns Hopkins might opt to mix and match, which is what industry experts recommend at this point. Newer vendors emerging with appliances won't take much business away from management heavyweights such as IBM and HP because the start-ups have yet to prove their equipment works. But they will get some nibbles, thanks to their low entry prices and fast deployments, which can give results sooner than roll-out cycles with complex software applications, analysts say.

"Appliance packaging should be considered as an option, but not a replacement to software," EMA's Drogseth says. "There are trade-offs for both. The simplicity of an appliance vs. the flexibility and adaptability of software." ■

Strix

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One beta site, with four of the stacks, is Pacific Coast Cabling, an 18-year-old voice and data cabling company in Chatsworth, Calif. The stacks cover most of about a 10,000-square-foot office space.

The cabling company's IT group previously had banned WLANs because of security concerns, says Allen Horwitz, vice president of the network division. But the IT group was intrigued by Strix, which supports the Advanced Encryption System in its products and made its gear work with the cabling company's RADIUS servers.

Another powerful attraction is that once installed, the Access/One stacks continually monitor radio frequencies and can pick up new transmissions. During the initial site survey at Pacific Coast Cabling, a Strix technician discovered an open access point at a neighboring company in the office complex. "[Rogue or open access points] can be detected at once and dealt with," Horwitz says.

There are four modules in the basic stack, each 3.5 by 7 by 1 inch. A full stack is about as high as a typical PDA is long.

At the bottom, there is the Base Module with the power cord and the electronics to power the rest of the stack components.

Then there is the 54M bit/sec 802.11a radio module, which creates what Jordan calls the "wireless back-haul" connection for the stacks in the mesh.

Next is an access point module to which clients connect. It is available in several versions: 802.11a, 802.11b, 802.11g and Bluetooth.

Finally, each stack includes an omni-directional radio antenna module that can support 2.4-GHz or 5-GHz signals.

An optional unit is the Network Server Module, which is a dedicated component for managing a network of up to about 20 stacks.

An optional Web plug-in, Manager/One, lets network administrators view an entire Access/One net.

A full Access/One stack costs $850 to $1,300, depending on the specific modules chosen. The products are scheduled to ship July 21.

The vendor has received $19 million in funding from El Dorado Ventures, Palomar Ventures and corporate investor Siemens. ■

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Microsoft

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an analyst with Burton Group. "There is no doubt that IBM and Novell have put some pressure on Microsoft around identity management. But this time I don't think Microsoft can announce something and stagnate the market. There are plenty of vendors, and this is a cross-platform issue at this point."

In the meantime, Microsoft lags behind IBM, Novell and Sun, each of which also has its eye on Web services. These competitors have built up their platforms over the past year to include the four basic elements of identity management: authentication, user management, access management and directory.

Microsoft's strategy revolves around Windows Server 2003, Active Directory and the revamped Microsoft Metadirectory Services 3.0, which is being renamed Microsoft Identity Integration Server (MIIS). MIIS is expected to ship next month.

The directory provides the core user repository, while MIIS provides connections to other data stores such as Lotus Notes and Novell e-Directory, and has basic provisioning capabilities.

The identity platform also includes Active Directory/Application Mode (AD/AM), a lightweight directory that can be dedicated to individual applications. It is expected to ship this week.

Those directory technologies have been promoted as the heart of Microsoft's identity management strategy, but users have been waiting for Microsoft to go beyond the directory and fill in the gaps.

"They need to establish themselves and say, 'We are a lot more than the directory and Passport [Microsoft's consumer service for single sign-on],'" says Jonathan Penn, an analyst for Forrester Research.

Microsoft's strategy has some weaknesses, experts say, in its user management features, such as self-service delegation and administration, and access management, most notably Web-based single sign-on.

"Virtually everyone but Microsoft has Web-based delegated administration, but with Microsoft it's either Windows account management or nothing," says one source who asked not to be identified.

Microsoft is pulling together existing products, sprinkling in new offerings and tapping third-party alliances to address the shortcomings. The company is adding tool kits to incorporate Web services standards into its .Net framework and guides for implementing products that support identity management services.

> **"If Microsoft is successful, Active Directory becomes the strategic corporate directory, and it drives everything."**
>
> **John Enck**
> Analyst, Gartner

Microsoft would not comment on its plans.

The company's platform will include BizTalk Server 2004, which will provide workflow capabilities and integration between systems for support of single sign-on. Microsoft also is including its Authorization Manager, which ships with Win 2003's Active Directory to provide a role-based authorization service that defines usage rights based on attributes such as job title. Roles can be used to support complex authorization models on an application-by-application basis.

Microsoft also intends to unveil a product called Microsoft Audit Collection System, which can track changes made to user identities or access rights. It eventually will be integrated with Microsoft Operations Manager to provide real-time alerts to administrators when user profiles are added, deleted or changed.

Microsoft also plans to revive its TrustBridge technology, which was introduced last year. TrustBridge was designed to allow the sharing of identities among companies running Active Directory. The technology also supports WS-Security, an emerging Web services protocol, and eventually will support other WS-Security-related protocols in development such as WS-Trust, WS-Policy, WS-Secure Conversation, WS-Federation, WS-Authorization and WS-Privacy. Microsoft intends to use those protocols to support authentication and authorization services between disparate systems.

Observers say TrustBridge could eliminate the need for third-party access management products when Web services applications are pervasive.

Until that happens, Microsoft is hedging its bets by cementing its current alliances with Open Network Technologies and Oblix.

Next week, Open Network is scheduled to announce an alliance with Microsoft and introduce its Universal Identity Platform (IDP) 5.0, which runs on top of Active Directory and MIIS.

IDP is a .Net application that includes user account management, access policy controls, and delegated user self-service and administration. It also features a workflow engine and the Universal Connectivity Broker, which provides connection to mainframes and non-Windows systems. The broker also supports Web services protocols, including Security Markup Language, Service Provisioning Markup Language and Directory Services Markup Language.

"For those platforms not supported by the Microsoft infrastructure, IDP provides connections to such things as the mainframe, [IBM's] OS/390 and WebSphere," says Bob Worner, vice president of product engineering for Open Network. Those connections coupled with MIIS can be used for federating identities or to support user account provisioning, Worner says.

Oblix plans to announce next week that it will support policy- and role-based access on the Microsoft platform.

"Microsoft realizes the pieces that they don't have, and they are looking at a combination of their products and partnerships to form a far more comprehensive identity management platform," says Prakash Ramamurthy, vice president of products and technology at Oblix.

Observers say the endgame is to establish Active Directory as the core user repository and heart of identity management platforms.

"If Microsoft is successful, Active Directory becomes the strategic corporate directory, and it drives everything," says John Enck, a Gartner analyst. "They use it to push out to the mainframe, Unix and every other platform. Frankly, they have a good shot at doing it." ■

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Exchange set for RTM, pricing/licensing announced

Microsoft this week will release the final version of Exchange 2003 and unveil a per-user and per-device pricing model similar to that of Windows Server 2003.

The release of Exchange 2003 comes four weeks after the company shipped the final beta of the server, or the so-called Release Candidate, at its annual TechEd conference. Exchange 2003 will be available in August to customers with enterprise agreement licenses. General retail availability will be later this year, according to a Microsoft spokesman.

The per-user licensing option, which carries a client access license (CAL) fee of $67, lets a user with multiple devices such as a laptop and handheld device access the server from either of those devices. The per-device pricing enables multiple users access from one machine. The per-device CAL also is $67 and will help Microsoft battle rival IBM/Lotus in the race to supply low-cost e-mail access to "deskless" workers, such as those on a shop floor. IBM/Lotus made its move in May with the introduction of its Workplace Messaging e-mail server.

Microsoft also is offering an External Connector License, which allows unlimited connection to a single server by non-employees such as business partners or school alumni.

The general availability of Exchange 2003 is expected to coincide with the release of Office 2003, which includes the Outlook 2003 client.

Outlook is required to take advantage of a number of performance and remote-access improvements available in Exchange 2003: Outlook 2003 supports a local cache feature that lets users cache server data on the desktop. Outlook 2003 also promises to let users connect remotely to the server without VPN link and communicate more efficiently with Exchange 2003.

— John Fontana

Exchange pricing and licensing

Exchange 2003, which ships to manufacturing this week, will be generally available in August.

Exchange 2003	Price	Description
Standard Edition	$699 per CPU	Designed for customers with 50 to 5,000 users; supports Outlook Web Access.
Enterprise Edition	$3999 per CPU	Adds clustering and storage features.
Client Access License — per user	$67	One user can access server from multiple devices (desktop, laptop, mobile device, home computer, etc.).
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BackSpin Mark Gibbs

What spam really costs, Part I

I was recently ringmaster at a Network World seminar sponsored by Surf Control on fighting spam, and a couple of days ago I spoke about the cost of spam at Jim Sterne's Emetrics Summit 2003 in Santa Barbara, Calif.

From these events I discovered 1) how few companies have a handle on how their e-mail systems work and what they cost, 2) how little they know about their users' experience, and 3) what spam really costs. To answer the latter you need to know the former.

The first issue requires a straightforward review of your system architecture, including equipment, services, and (this is the one that almost always gets overlooked) how they integrate (or don't) with business processes (if you have trouble getting this review done, let me know, I will be only too happy to help you for an exorbitant fee).

You also need to know what your incoming data services look like: what they cost per month, what percentage of the bandwidth is actually used and what fraction of that is used for e-mail.

And you'll need to know what the management and maintenance costs are for e-mail, and what costs are involved with the storage of e-mail on a monthly basis (don't overlook desktop costs and transient storage on the server).

The next issue is crucial: You need to survey your users. "What!" I hear you exclaim. "We have to actually talk to them?" Yep, sorry, but like it or not, and no matter how management policies might shelter you from the harsh reality of the front lines of your business battle, those end users are your customers. And as is always the case, fail to serve your customers and you eventually will pay for it.

In the case of spam, you need to find out what your end users actually do with e-mail and what they perceive the spam problem to be.

The first task is to find out how much mail each user sends and receives each month (a month usually gives a more accurate profile than a week or a day) and segregate that into internal and external routings. Then ask the users what percentage of the mail they receive is what they think of as spam.

This is a crucial issue: What you in IT think of as spam could differ significantly from the end user's viewpoint. For example, you'll both (I hope) agree that hot teens and the enlargement of bodily parts constitute spam. Where you'll differ could be more subtle. Your users might not object to refinancing opportunities and actually might welcome offers from obscure Chinese manufacturers. You're going to have to do a little digging here.

So, if you have a large user population and can't survey everyone, use a statistically significant sample, and then go and find out what they think. Then ask them to forward samples of each type of spam they get for analysis (make sure you use the term "analysis" — it always sounds much sexier then "check out").

You might also ask them to submit samples of messages they consider non-work-related but not spam. This will give you insight into what users actually do with e-mail in terms of workplace communications, such as swapping jokes with colleagues and business contacts, and keeping in contact with friends and family.

You also should watch a few users handle their e-mail. Find out how long it takes them to handle the spam they get and then work out the average time it takes for them to handle a spam message.

In the spam cost models I have built, I worked with a value of 5 seconds for a user to handle a piece of spam, but for your users' mileage might vary. Some IT people have told me their average user takes roughly 1 minute to deal with each spam, which significantly increases the cost.

OK, so that's your homework. Find out all of those figures, and next week we'll start working on the last issue: what the cost of spam really is for you.

Send your homework to backspin@gibbs.com.

'NetBuzz News, insights, opinions and oddities

By Paul McNamara

Filters make sense sometimes

Largely lost amid all the hubbub over last week's Supreme Court decision on affirmative action was another ruling that held Congress to be within Constitutional bounds when it told public libraries they must use content filters to protect kids from Internet filth.

Also largely lost — at least on me — is why so many librarians and civil libertarians picked this fight in the first place.

Buzz doesn't consider himself a First Amendment purist — few people do (witness the exceptions regarding commercial speech, school prayer and shouts of "fire" in crowded theaters) — but zealot wouldn't be too strong a word.

And support here for the court's ruling shouldn't be read as a blanket endorsement of Web filters. It's becoming clear that content filters are more of a management crutch in the workplace than a necessity born of genuine business imperatives. Overly cautious human resources professionals stoked by on-the-clock lawyers and journalists who recognize a hot-button story have achieved great success in sowing the kind of fear that top-level executives find hard to resist.

Reasonable people can disagree about the need for workplace filters in part because the stakes are relatively low in that we're talking about adults, not the safety and well-being of children.

Kids are a different matter. And the Internet is an open sewer that no one should want to see a 10-year-old approach without adult supervision.

Which should mean one of three things to librarians: keep children out of your buildings altogether, keep the Internet out or use the best software that today's filter makers have to offer. I doubt the first two options have many supporters.

Any suggestion that parents should monitor their children's Internet use at the library might score you a debate point — if the judges are charitable — but fails to recognize the realities of modern life.

So are Web filters in libraries a perfect solution? Heck no, they are just common sense and the better of flawed choices, which Congress recognized and a 6-3 Supreme Court majority affirmed last week.

The Supremes even made it easier for the First Amendment crowd to swallow this decision by requiring that any filters have, in essence, an off switch that adult patrons can have flipped merely by asking a librarian. This might be slightly inconvenient — or even embarrassing to some — but should also ensure that any grown-up doing library research on grown-up matters won't be thwarted.

If that's still not enough for the librarians who oppose these filters they have another option: simply decline to accept federal funding, as the law applies only to those libraries that accept such money.

No one ever said sticking to principles would be cheap.

This was only a college election

Now that the 2004 presidential election cycle has kicked into high gear — yes, this early — it shouldn't be long before we start hearing more hype about the wondrous potential of someday voting for our political leaders over the Internet.

This was my first thought upon reading about the University of California, Riverside, computer science student who hacked into that school's computer system during a student-government election and registered 800 fraudulent votes.

The student told authorities he was trying to demonstrate the vulnerability of the university's network.

"He made his point, but you might say he went about it in the wrong way," a school official told Associated Press. "An e-mail to the Webmaster might have sufficed."

They had to do the election over, of course, which isn't exactly the end of the world considering the stakes.

But consider the difference had this been polling for our president?

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